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Powered by OvisLink Corp.

SNMP-FSH2602MG

26+2-port SNMP/Web
Management Switch

User's Manual

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Declaration of Conformity

We, Manufacturer/Importer

OvisLink Corp.
5F., NO.6, Lane 130, Min-Chuan Rd.,
Hsin-Tien City, Taipei County, Taiwan

Declare that the product

26+2-port SNMP/Web Management Switch
SNMP-FSH2602MG
is in conformity with

In accordance with 89/336 EEC-EMC Directive and 1999/5 EC-R & TTE Directive

Clause	Description
■ **EN 55022:1998/A1 :2000/A2:2003**	Limits and methods of measurement of radio disturbance characteristics of information technology equipment
■ **EN 61000-3-2:2000**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Harmonics"
■ **EN 61000-3-3:1995/ A1:2001**	Disturbances in supply systems caused by household appliances and similar electrical equipment "Voltage fluctuations"
■ **EN 55024:1998/A1 :2001/A2:2003**	Information Technology equipment-Immunity characteristics-Limits And methods of measurement
■ **CE marking**	CE

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This equipment has been tested and found to comply with the requirements for a Class A digital device, pursuant to Part 15 of the FCC Rules. These requirements are designed for reasonable protection against harmful interference when the equipment operating in a commercial environment. This equipment can generate and radiate electromagnetic energy and, if not installed and used in accordance with this guide, may cause significant interference with radio communication. Operation of this equipment in a residential area is likely to cause interference to household appliances, in which case the user will be required to amend at his or her own expense.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate preventive measures.

Disclaimer

Contents in this manual are subject to changes without prior notice.

About this *User's Manual*

This *User's Manual* aims at helping users to know the key features of SNMP-FSH2602MG Management Switch and to install it in a Local Area Network (LAN).

Table of Contents

1 PRODUCT OVERVIEW 1

Introduction 1

Guide to the Chapters 1

Quick Setup 2
Power-On the switch 2
Ports and Indicators 2
Switch's default IP address 2
Console Port Information 3
User's Name and Password 3
LED Table 3

2 INSTALLATION OF THE SWITCH 4

Installation Procedures 4

Unpack the Package 5

Hardware Overview 6
Front Panel 6
The Rear & Side Panel 6

Module Installation 7
Module Type 7

Installation Site Preparation 7

Rack Mounting 8

Desktop Installation 9

Cabling Requirements 9
For 100BASE-TX and 1000Base-T ports 9
Auto MDI/MDI-X function 10
Making your own UTP/STP cable 10

Connecting to Power 11

3 LED INDICATORS 12

Comprehensive LEDs **12**

System LEDs **12**
FAN1 LED 12
FAN2 LED 12

Station Port LEDs for Port 1 ~ 24 ..... **13**
Link/Act LED 13
100M 13

Module LED **13**
1000Base-T Module LEDs 13
Fiber Module LEDs 13

LED Table **13**

4 WEB MANAGEMENT **14**

In-Band and Out-of-Band Management **14**

Setup your computer for Web management **14**
The Concept of Subnet 14
Configure your computer's IP 15

Remote Management **16**
Direct Connection to Internet 16
Connect through Broadband Router 17

Get into the Web Management **17**
Menu Bar 18
Top Switch Image. 18

Port Status **19**
All Port Status 19
Single port status 20

Port Statistics **20**

Show MAC Table **23**

Administrator **24**

IP and Management Mode (Administrator menu) **24**

Switch Setting (Administrator menu) **25**
Advanced settings 25
MAC Address Age-out Time 26

Max bridge transit delay bound control 26
Broadcast Storm Filter 26

Priority Queue Service settings 26
802.1p Priority 27
QoS policy: High Priority Levels 27
Collisions Retry Forever 27
802.1x Protocol 27

Console Port Information (Administrator menu) 28

Port Controls (Administrator menu) 28

Ingress and Egress Control 29

Trunking (Administrator menu) 31
Aggregator setting 32
Aggregator Information 32
State Activity 33

Filter Database (Administrator menu) 34
IGMP Snooping 34
Static MAC Address 35
MAC filtering 36

VLAN configuration (Administrator menu) 37
Port-based VLAN 38
802.1Q Tag-based VLAN 38
802.1v Protocol-based VLAN 38
GVRP (Generic Attribute Registration Protocol) 38
Configuring Port Based VLAN 39
Configuring 802.1Q and 802.1v VLAN 40

Spanning Tree (Administrator menu) 42
Setting Spanning Tree 43

Port Mirror (Administrator menu) 44

SNMP/Trap Manager (Administrator menu) 45

Security Manager (Administrator menu) 46

Introduction to 802.1x Authentication Protocol 47

802.1x Configuration (Administrator menu) 48
System Configuration 48

Per Port Configuration 49
Misc Configuration 49

PING 50

TFTP Update Firmware 51

Configuration Backup 52
TFTP Restore Configuration 52
TFTP Backup Configuration 52

Reset System 53

Reboot 53

Event Logging 53

5 TERMINAL MANAGEMENT 54

In-Band and Out-of-Band Management 54

Configure for Telnet management 54
The Concept of Subnet 54
Configure your computer's IP 54
Remote Management 56
Telnet to the switch 57

Console Port Management 58
Making RS-232 Cable Connection to the Host PC 58
Using Windows HyperTerminal 59
Run Windows *HyperTerminal* utility 59

Main Menu 62

Hot Keys 62

Switch Configuration 63
Port Configuration 64

Trunk Configuration 65

VLAN Configuration 66
VLAN Configure 66
Create a VLAN Group 67
Create 802.1Q VLAN 68
Edit / Delete a VLAN Group 69
Groups Sorted Mode 70

Misc Configuration **72**
MAC Age Interval 72
Broadcast Storm Filtering 73
Max bridge transmit delay bound 73
Port Security 74
Collision s Retry Forever 75
Hash Algorithm 75
IFG Compensation 76

Administration Configuration **76**
Change Username 77
Change Password 77
Device Information 78
IP Configuration 78

Port Mirror Configuration **79**

Priority Configuration **80**
Port Static Priority 80
802.1p Priority Configuration 81

MAC Address Configuration **81**
Static MAC Address 82
Filtering MAC Address 85

Protocol Related Configuration **87**
STP Spanning Tree Protocol 88
SNMP 90
Trap Managers 93
GVRP 95
IGMP 96
LACP (Link Aggregation Control Protocol) 97
802.1x Protocol 100

Status and Counters **104**
Port Status 104
Port Counters 105
System Information 105

Reboot Switch **106**
Default 106
Restart 106

TFTP Update Firmware **107**
TFTP Update Firmware 107
Restore Configure File 108
Backup Configure File 109

Application Examples **110**
Benefit of VANs 111
Trunking Application used with switch 112

APPENDIX A PRODUCT SPECIFICATIONS **122**

APPENDIX B TROUBLESHOOTING **125**

Figures

Fig. 2-1 Package Contents 5
Fig. 2-2 Front Panel 6
Fig. 2-3 Rear & Side Panel 6
Fig. 2-4 Fastening the brackets on the switch 8
Fig. 2-5 Attaching the Switch to a 19-inch rack 9
Fig. 2-6 Desktop installation 9
Fig 2-9 Connecting the Switch to power outlet 11
Fig. 3-1 Front-panel LED indicators 12
Fig. 3-2 System LEDs 12
Fig. 3-3 Stantion Port LEDs 13
Fig. 3-4 Module LEDs 13
Figure 4-1 Manual IP setting 15
Figure 4-2 Remote Management through direct Internet 16
Figure 4-3 Remote Management through Broadband Router 17
Figure 4-2 Main Web Management Screen 18
Figure 4-3 All Port Status 19
Figure 4-4 Single Port Status 20
Figure 4-5 Port Stastics 21
Figure 4-6 IP Configuration 25
Figure 4-9 Advance Switch Settings 25
Figure 4-10 802.1p Priority Settings 26
Figure 4-11 Port Control Settings 28
Figure 4-12 Trunking 32
Figure 4-13 Trunking State Activity 34
Figure 4-14 IGMP Snooping 35
Figure 4-15 Static MAC address 36
Figure 4-16 MAC filtering 37
Figure 4-16 Enable VLAN configuration 37
Figre 4-17 Configure Port-Based VLAN 39
Figure 4-18 Configure 802.1Q/V VLAN 40
Figure 4-19 Set Spanning Tree 43
Figure 4-20 Span Tree Port Parameter 44
Figre 4-21 Port Mirror 45

Figure 5-1 Manual IP setting 55
Figure 5-2 Remote Management through direct Internet 56
Figure 5-3 Remote Management through Broadband Router..... 57
Fig. 5-4 RS-232 Cable 58
Fig. 5-5 Console Port 59
Fig. 6-3 RS-232 Cable 59

Tables

Table 2-1 Module Specification Table 7
Table 2-2 Cabling type for 10/100BASE-TX and 1000Base-T..... 10
Table 3-1 LED Table 13
Table 4-1 IGMP Snooping Messages 35
Table 4-2 Span Tree Setting Parameters..... 44

1 Product Overview

Introduction

The SNMP-FSH2602MG features 24 Fast Ethernet ports with auto MDI/MDI-X function to eliminate the need for cross-over cables. SNMP-2602MG have 2 1000Base-T/-SX/-LX, mini-GBIC ports onboard with auto-detection .All this power is cooled by the dual fans with fan status LEDs on the front panel. Furthermore, the port's status indicators are built adjacent to each port for fast viewing. All ports and status display are on the front for easy access.

Phenomenal Power

The SNMP-FSH2602MG is compliant with RFC1213 (RMON groups 1, 2, 3, 9), RFC1493 (Bridge MIB), and RFC1643 (Ether-Like MIB) SNMP standards. It features a full array of management function including Spanning Tree, IGMP Snooping, LACP Trunking, 802.1Q Port-Based VLAN, 802.1p Priority, Access and Security control, GVRP Automatic VLAN Assignment, 802.1v Protocol Based VLAN, RMON, and even the latest 802.1x authentication protocol.

SNMP for Everyone

All management functions can be configured through WEB browser, SNMP Management software, Telnet, or the dedicated Console Port. The intuitive WEB interface is especially designed to allow simple and speedy configurations even for the most advanced functions. Now, users can truly enjoy the benefit of SNMP management without fear of being intimidated by its complexity. At any time, users can click on the “help” icon for setup instruction inside the web management.

This user’s manual will help you to uncover most functions of the SNMP-FSH2602MG with step-by-step instructions presented by high quality illustrations. Thank you for choosing OvisLink’s product.

Guide to the Chapters

- **Chapter 1**:
  Introduction and Quick Setup guide. All the essential information including IP Address and Password information are in the Quick Setup section.
- **Chapter 2**:
  Detail installation instruction including module information and how to make Cat. 5 cable.
- **Chapter 3**: LED indicators
- **Chapter 4**: Detail information on Web management including how to setup remote management.
- **Chapter 5**: Detail instructions on Telnet and Console management.

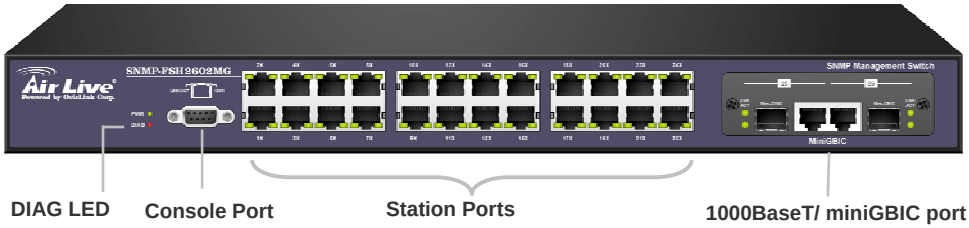
Quick Setup

This section provides the essential information for experienced users to operate the switch immediately. For detailed installation instruction, please see chapter 2 for more information.

Power-On the switch

- The SNMP-FSH2602MG has a built-in power supply to operate with 90 ~ 260V AC, 50 ~ 60Hz power source.
- The AC power cord connector is located at the rear of the unit and the On/Off switch is next to the connector.
- After the Switch is powered on, it will perform "***self-diagnostic***" test. This process takes about 100 seconds to complete. During this process, the "DIAG" LED will blink and the Switch will not response to any configuration program and all the connections to the Switch will not be available. When the processed is completed, the "DIAG" LED will stay solid green.

Ports and Indicators



Front panel of SNMP-FSH2602MG

- The DIAG LED indicator will blink for 100 seconds during power-up to indicate the process of diagnostic test. The switch will function only after the process is completed.
- For management through smart console, a RS-232 cable should be used to connect the console port with the computer's COM port.
- For management through Web browser or telnet, please make sure your PC is connected to any of the 24 station ports.
- SNMP-FSH2602MG has 2 mini-GBIC/1000Base-T auto-detection ports on board.
- There are 2 LEDs on the sides of each RJ-45 station port. The left LED indicates the Link/Action Status. The right LED indicates whether the connection is in 100Mbps mode.

Switch's default IP address

- The Default IP configuration for the switch is:
  IP Address: 192.168.223.100
  Subnet Mask: 255.255.248.0
  Gateway: 192.168.223.254
- For Web and Telnet management, please set your computer's IP address to the same subnet as the switch (for example, IP: 192.168.223.101, Subnet Mask: 255.255.248.0).
- After setting up the computer's IP properly, please enter the switch's IP address

"192.168.223.100 in Web browser or Telnet program to manage the switch.

- If users can't find the switch at the default IP address, please connect the switch to the console port. Use the console port management to change the switch's IP configuration.

Console Port Information

- Please use a serial cable to connect between the console port of the switch and the COM port of the computer.
- Use a terminal program such as Window's Hyper terminal
- Open a new session and select the right COM port. Then enter the connection information as followed:
  - Bits Rate per Second = 57600
  - Data Bits = 8
  - Parity = None
  - Stop Bit = 1
  - Flow Control = None
- Please "enter" key to get into the smart console

Please note the smart console will not work during the 100second Power-On test.

User's Name and Password

The Default User's name and Password is as followed

- User's Name: admin
- Password: 123

LED Table

LED indicator	Color	Status	Meaning
System LEDs			
Power	● Green	ON OFF	Power ON Power OFF
DIAG	● Red	Blinking ON	Performing Self-Diagnostic Test Diagnostic Test is successful
Station Port LEDs			
Link/Act	● Green	ON Blinking OFF	Connection Established Transmitting/Receiving No connection is made
100M	● Green	ON OFF	100 Mbps Connection 10 Mbps Connection
Gigabit port LED			
Top LED	● Green	ON	1000Mbps Connection
Bottom LED	● Green	Blinking	Transmitting/Receiving

2 Installation of the Switch

This chapter provides the detailed instructions for installation of the switch. For concise installation instruction, the previous chapter's "Quick Setup" section provides all the important information including IP address, password, and LED table for user's reference.

Installation Procedures

This section lists the installation procedures in steps. Each step's instruction is thoroughly explained in the subsequent sections of this chapter.

Step 1: **Unpacking the package**

- Before you begin the installation of the Switch, make sure that you have all the necessary accessories that come with your package

Step 2: **Install the optional module**

- If you have purchased the optional module, please view the "Module Installation" section for instruction and specifications of the modules.

Step 3: **Prepare the installation site**

- The location you choose to install your switch and the way you configure your network may greatly affect its performance. Please view this section for proper site preparation

Step 4: **Rack Mount or Desktop Installation**

Step 5: **Installing Cables**

- The "Cable Requirement" section of this chapter gives the guidance for the type of cable to use. Instruction for making UTP/STP cables is also provided.

Step 6: **Connecting to Power**

Step 7: **Power-On the switch**

- After the Switch is powered on, it will perform "***self-diagnostic***" test. This process takes about 100 seconds to complete. During this process, the "DIAG" LED will blink and the Switch will not response to any configuration program and all the connections to the Switch will not be available. When the processed is completed, the "DIAG" LED will stay solid green.

Step 8: **Configuring the switch for management functions**

- **Web Management**: for instruction on management using Web browser, please see Chapter 4 for further instruction.
- **Telnet Management**: for instruction on management using Telnet, please see Chapter 5 for further instruction.
- **Console Port Management**: for instruction on management through console port, please see Chapter 5 for further instruction.

Unpack the Package

Before you begin the installation of **SNMP-FSH2602MG**, make sure that you have all the necessary accessories that come with your package. Follow the steps below to unpack your package contents:

1. Clear out an adequate space to unpack the package carton.
2. Open the package carton and take out the contents carefully.
3. Put back all the shipping materials such as plastic bag, padding and linings into the package carton and save them for future transport need.

After unpacking and taking out the entire package contents, you should check whether you have got the following items:

- ☒ One SNMP-FSH2602MG
- ☒ One AC power cord
- ☒ Rack-mounting kit (screws and mounting brackets) and Rubber Pads
- ☒ Quick Install Guide
- ☒ Support CD-ROM (The PDF version of this *User's Manual* can be found within)
- ☒ One RS-232 Cable

If any of these above items is missing or damaged, please contact your local dealer for replacement.

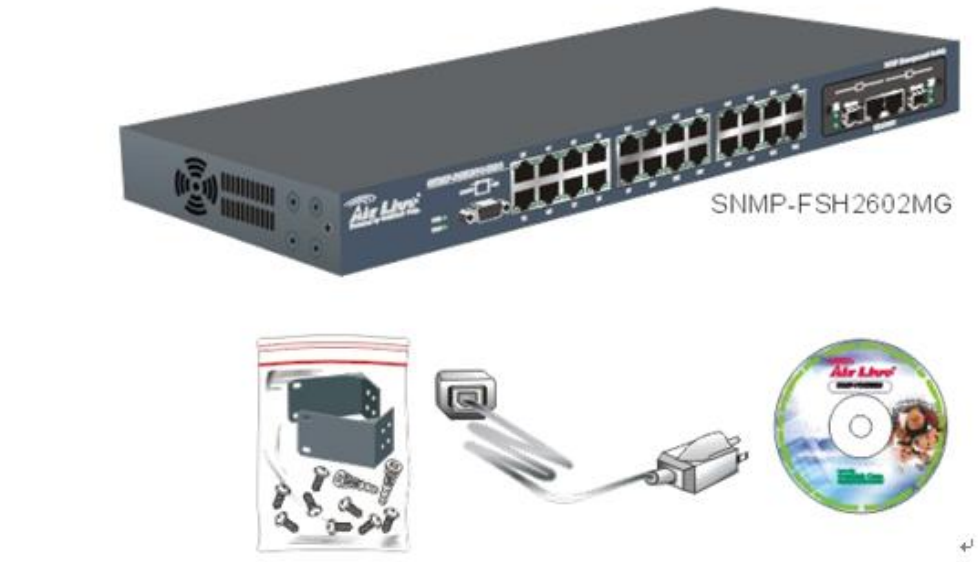
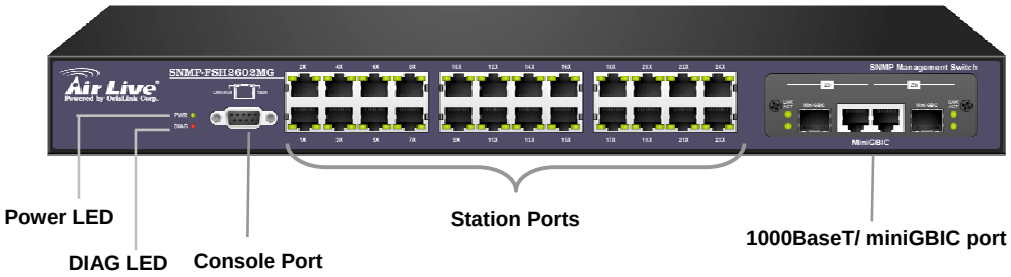


Fig. 2-1 Package Contents

Hardware Overview

Front Panel

The front panel is where you can find the twenty-four 10/100Mbps station ports, the module slot, console port, and the LED indicators. For the technical specifications of the ports, please refer to *Appendix A, Product Specifications* for detailed information. For detailed explanation of the LED lights, *please refer to chapter 3 "LED Indicators"*.



- **DIAG LED:** The DIAG LED indicator will blink for 100 seconds during power-up to indicate the process of diagnostic test. The switch will function only after the power-on diagnostic test is completed. The DIAG LED will stay solid green after the test is completed.
- **Console Port:** The console port is where you can connect the switch (via a RS-232 cable) to a computer for smart console management. Please refer to chapter 5 "*Console Port and Telnet management*" for more information.
- **mini-GBIC Port :** 2 pair ports of RJ-45 (1000Base-T/SX/LX) and mini-GBIC with auto-detection

The Rear & Side Panel

The rear panel and side panel is where you can locate the power switch, AC power connector, and cooling fans.

Fig. 2-3 Rear & Side Panel

- **Cooling Fans**: The SNMP-FSH2602MG is equipped with 2 cooling fans located on the sides of the switch. When facing front, the left cooling fan is designated as FAN 1 and the right cooling fan is designated as FAN2. When a fan has failed, the fan status LED on the front panel will light-up red to indicate a failure of the corresponding fan. Cooling fans are essential to keep the switch from over-heating. Therefore, please make sure that the fan openings are not blocked and there is at least 10cm (4 inch) of space on the sides to allow proper air circulation.

Module Type

Module Specification: The following table shows the essential information for different module type:

Module Type	1000Base-T Gigabit Copper	1000Base-SX Gigabit Fiber	1000Base-LX Gigabit Fiber	100Base-FX Fiber
Cable Type	Cat. 5 UTP/STP	multi-mode Fiber	single mode or multi-mode Fiber	multi-mode Fiber
Speed	10/100/1000 Mbps	1000 Mbps	1000 Mbps	100 Mbps
Laser Type	N/A	850nm Short Wave Laser	1300nm Long Wave Laser	850nm Short Wave Laser
Connector Type	RJ-45	SC	SC	SC
Link Distance *(Full Duplex)*	*Note: MMF stands for Multi-mode Fiber, SMF stands for Single Mode Fiber*			
Cat 5 Cable	100 m	Unable to Use	Unable to Use	Unable to Use
62.5um MMF	Unable to Use	275 m	550 m	2 km
50um MMF	Unable to Use	550 m	550 m	2 km
10um SMF	Unable to Use	Unable to Use	5 km	Unable to Use
9um SMF	Unable to Use	Unable to Use	10 km or greater*	Unable to Use
Special Note	Recommend using Category 5E cable or better		Higher power transceiver available for special order	

Table 2-1 Module Specification Table

Note: *Gigabit Fiber (1000Base-SX and 1000Base-LX) can only operate in 1000Mbps full duplex mode (the half duplex mode is no longer supported for most chipsets). There are commonly 2 standards for the switch to detect the operational mode. One is "forced 1000Mbps" mode, the other is "Auto" mode. The Gigabit Fiber ports on both sides must be set to operate in the same detection mode to work. The SNMP-FSH2602MG's fiber module is default to "forced 1000Mbps" mode. To operate with fiber port in "auto" mode, please change the mode through web*

Mini-GBIC Adapter: The mini-GBIC adapter module provides 2 empty Mini-GBIC slots for users to install industrial standard Mini-GBIC modules.

Installation Site Preparation

You can mount **SNMP-FSH2602MG** either on desktop or on a 19-inch rack. If you plan to mount the switch on desktop, please choose a steady, level surface in a well-ventilated area that is free from excessive dust. In any case, the installation site chosen for your

switch has to comply with the following requirements:

- The surface where you want to mount the switch must be able to sustain at least 2.5kg.
- Do not place heavy objects (more than 3kg) on top of the switch.
- The location must preferably be free from excessive dust, away from heat vent, hot-air exhaust and direct sunlight.
- The switch should not be placed near large electric motors or other strong electromagnetic sources. As a reference, the strength of the electromagnetic field on site should not exceed the (RFC) standards for IEC 801-3, Level 2(3V/M) field strength.
- The air temperature in the location should be within a range of 32 to 122 °F (0 to 55°C).
- The relative humidity in the location should not exceed 95% non-condensing humidity.
- The distance between the RJ-45 port and the standard network interface should not exceed 100 meters.
- Adequate space should be allowed in front of all the ports, so that each port is easily accessible for cable connections.
- Leave at least 10cm(4 inch) of space around the switch to allow heating dissipation

Rack Mounting

SNMP-FSH2602MG can be mounted on a standard size 19-inch rack, which can in turn be placed in a wiring closet with other equipments.

Before you can mount the switch on the rack, first you must attach the mounting brackets on both sides of the switch with screws, and then mount it as a unit on the rack.

To mount the unit on a rack, please follow the steps below:

Step 1. First, align the holes on the bracket with the holes on both side of the switch.
Step 2. Insert screws into the holes and then fasten the bracket on one side of the switch with a screwdriver.
Step 3. Repeat Step 1 and 2 to fasten the bracket on the other side of the switch.
Step 4. Mount the unit on the rack and align the notches on both brackets with mounting holes on the rack, and then secure the unit with suitable screws.

Fig. 2-4 fastening the brackets on the switch

Fig. 2-5 attaching the Switch to a 19-inch rack

Desktop Installation

SNMP-FSH2602MG has four rubber pads attached on each corner of its underside. These pads serve as cushioning against vibration and prevent the switch from sliding off its position. They also allow adequate ventilation space when you place the switch on top of another device.

Fig. 2-6 Desktop installation

- The location you choose to install your switch and the way you configure your network may greatly affect its performance. Please see the previous section for "installation site" preparation.
- Do not place more than 3kg(6.6lbs) of weight on the top of the switch.
- Leave at least 10cm (4 inch) of space around the switch to allow proper heating dissipation.

Cabling Requirements

For 100BASE-TX and 1000Base-T ports

The 24 RJ-45 station ports and 1000Base-T / Mini GBIC slot require Cat. 5 twisted-pair UTP/STP cable for connection. When configuring within the 10/100/1000BASE-T cabling architecture, the cable distance should be within 100m.

The following table summarizes the cable requirement for 10/100/1000BASE-TX connection:

10BASE-T	100 ohm Category 3, 4, 5 UTP/STP cable
100BASE-TX	100 ohm Category 5 UTP/STP cable
1000BASE-T	100 ohm Category 5 UTP/STP cable or better (CAT 5E recommended)

Auto MDI/MDI-X function

The SNMP-FSH2602MG is equipped with Auto-MDI/MDI-X function, which allows you to use straight-thru cable even when connecting to another switch/hub. Simply use the straight-through cable for all types of 10/100/1000BASE-TX connections, either to a PC or to a networking device such as other hub or switch.

Connection / Specification	10 /100Base-TX and 1000Base-TPorts
Interface	RJ-45
Cable to Use	
To an end station	Straight-through twisted-pair cable
To a hub/switch	Straight-through twisted-pair cable
Maximum Distance	100 meters

Table 2-2 Cabling type for 10/100BASE-TX and 1000Base-T

Making your own UTP/STP cable

The twisted-pair cable provided an eight-pin plug at each end that mate with the twisted-pair port on the adapter and with a RJ-45 wall jack. If you are marking your own interface cables to use as dedicated network wiring or as extension cables, please follow the guideline below:

- Each UTP/STP cable contains eight wires in either 568A or 568B color scheme (please see Fig 2-7). The wires are twisted in pairs to reduce cross talk and various signal noises.
- Each pairs composed of one positive wire and one negative wire. The positive are marked by stripe color while the negative are marked by solid color. A pair of wires is composed of one stripe and one solid wire of the same color.
- There are four pairs of wires, they are in group of {1 and 2}, {3 and 6},{4 and 5},{7 and 8}. Please see Fig 2-8 for diagram.
- When making a cable, make sure the correct pairs of wire are twisted together before inserting into the jack. Incorrect twisted pair will cause the cable to malfunction or signal degradation over short distance.
- A straight-thru cable has jacks on both end following the same color scheme.
- A cross-over cable have jacks on both end following the opposite color scheme (one 568A and one 568B)
- While 10/100Base-TX only use the first 2 pairs of wires (1+2, 3+6). The 1000Base-T Gigabit Copper connection uses all 4 pairs. Please make sure all 4 pairs are twisted and insert into the jack in correct order.

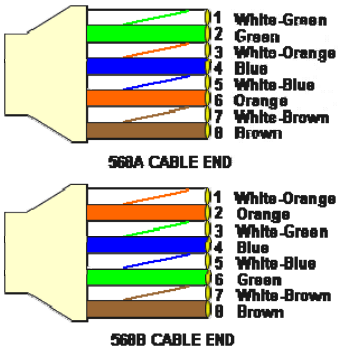


Fig 2-7 Twisted Pair Color Scheme

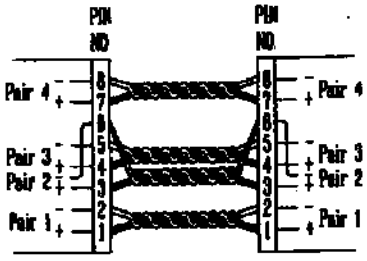


Fig 2-8 Pair Wires

Connecting to Power

SNMP-FSH2602MG features a universal auto-select power supply unit, which allows a power connection to a wide range of input voltages from 90 to 260V_{AC} @ 50 ~ 60Hz. To establish its power connection, simply plug the female end of the power cord into the power connector on the rear of the switch and the male end of the power cord into a suitable power outlet. Once you have correctly plugged in the power, you can then turn on the Power Switch to activate the switch.

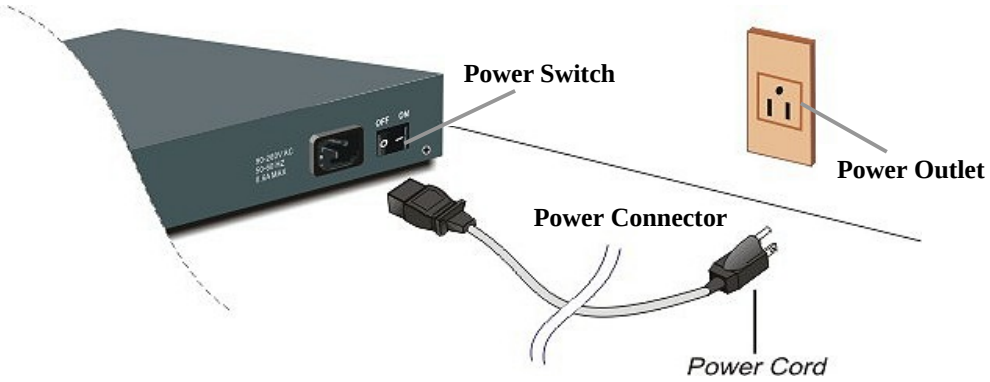


Fig 2-9 Connecting the Switch to power outlet

3 LED Indicators

Before connecting any network device to **SNMP-FSH2602MG**, you should take a few minutes to look over this chapter and get familiar with the front panel LED indicators of your Switch.

Comprehensive LEDs

The front-panel LED indicators of **SNMP-FSH2602MG** comprise 3 sets of LEDs: System Status LEDs, Station Port LEDs, and Gigabit port LEDs. Each set of LEDs gives specific information concerning the system status or the station port status:

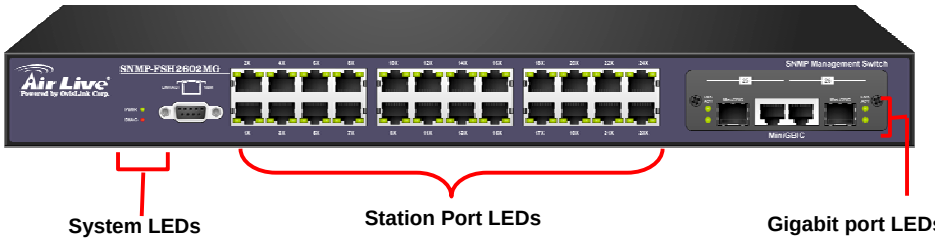


Fig. 3-1 front-panel LED indicators

The specific function of each LED will be described in full details in the following sections:

System LEDs

Power LED

The Power LED will give a solid green light when you turn on the Switch, and will be off when the Switch being turned off. You can simply check the Power LED to see if the Switch is being activated. Before turning on the Switch, please verify that the power cord has been properly connected to the Switch and the power outlet on the wall.

DIAG LED

The DIAG LED indicator will blink for 100 seconds during power-up to indicate the process of diagnostic test. During the Diagnostic test, the switch will not function and all the ports are not available. Once the self-diagnostic test is completed, the DIAG LED will remain solid green. The switch will function normally after the process is completed.

Station Port LEDs for Port 1 ~ 24

The SNMP-FSH2602MG is equipped with 2 LEDs on the sides of each RJ-45 station port. This design allows users to view the status of each port quickly. The left LED indicates the Link/Action Status. The right LED indicates whether the connection is in 100Mbps mode

Link/Act LED

Link/Act LED giving a solid green light indicates that a data link has been established between the corresponding port and the device. If no connection is made, it will be off. While the port is transmitting or receiving data, you will see a blinking green light.

100M

100M LED giving a solid green light indicates that a 100Mbps data link has been established between the corresponding port and the device. If a 10Mbps connection or no connection is made, it will be off.

Gigabit Port LEDs

The Figure below shows the switch equipped with a 2-port 1000Base-T Modules. It has 2 LED indicators for each port.

Link LED

When the top LED remain solid green, it indicates a 1000Mbps connection has been made

ACT LED

While the port is transmitting or receiving data, you will see a blinking green light.

LED Table

LED indicator	Color	Status	Meaning
System LEDs			
Power LED	● Green	ON OFF	Power ON Power OFF
DIAG LED	● Red	Blinking ON	Performing Self-Diagnostic Test Diagnostic Test is successful
Station Port LEDs			
Link/Act	● Green	ON Blinking OFF	Connection Established Transmitting/Receiving No connection is made
100M	● Green	ON OFF	100 Mbps Connection 10 Mbps Connection
Gigabit port LED			
Top LED	● Green	ON	1000Mbps Connection
Bottom LED	● Green	Blinking	Transmitting/Receiving

Table 3-1 LED Table

4 Web Management

The SNMP-FSH2602MG supports in-band management through web browser. In this session, you will learn how to access the switch's powerful management functions through the web browser. You will also learn how to manage the switch remotely through Internet. Please note that the current firmware requires use of **Internet Explorer** for web configuration. For operation system that does not support Internet Explorer, please go to chapter 5 for management through Telnet.

In-Band and Out-of-Band Management

In-Band and Out-of-Band managements are the two distinct methods for switch management.

In-Band management that includes Web, Telnet, and SNMP allows users to configure the switch through the Ethernet network. By connecting the switch through a router or directly to Internet, user can even manage the switch remotely.

Out-of-Band management means managing the switch outside of the switch's Ethernet network. Console Port management is the most common type of out-of-band management. Out-of-Band management requires the switch to be physically attached to a computer through a RS-232, USB, or Parallel port. It has the distinct security advantage and it can serve as a backup when In-Band management function fails. For console port management, please see chapter 5 for more details.

Setup your computer for Web management

The Concept of Subnet

Under the TCP/IP environment, network devices must be on the same subnet in order to see each other. This means before you can configure the switch through web browser, your must set your computer to the same subnet as the switch. For two network devices to be on the same subnet, they must have the following 2 criteria
:

- **Their IP address must be on the same subnet**. For example, if one IP address is 192.168.0.1. The other's IP address must be 192.168.0.x (x is any number between 2 and 254) for Class C subnet. To find out the IP address information for your computer. Under WinNT/2000/XP, please open Command Line window and type "ipconfig". Under Win9x, please run "winipcfg".
- **They must have the same subnet mask.** For example, if one machine is 255.255.255.0. The other machine must also set to the same 255.255.255.0 mask.

Configure your computer's IP

Before accessing the switch through web browse, please follow the instruction below to configure your computer's IP to the same subnet as the switch. If your switch's IP has not been changed, it should have the following factory default value:

The switch's Default IP

IP Address:	192.168.223.100
Subnet Mask:	255.255.248.0
Gateway:	192.168.223.254

Now if your computer's IP is not in the same subnet as the switch, please follow the steps below to change the computer's IP:

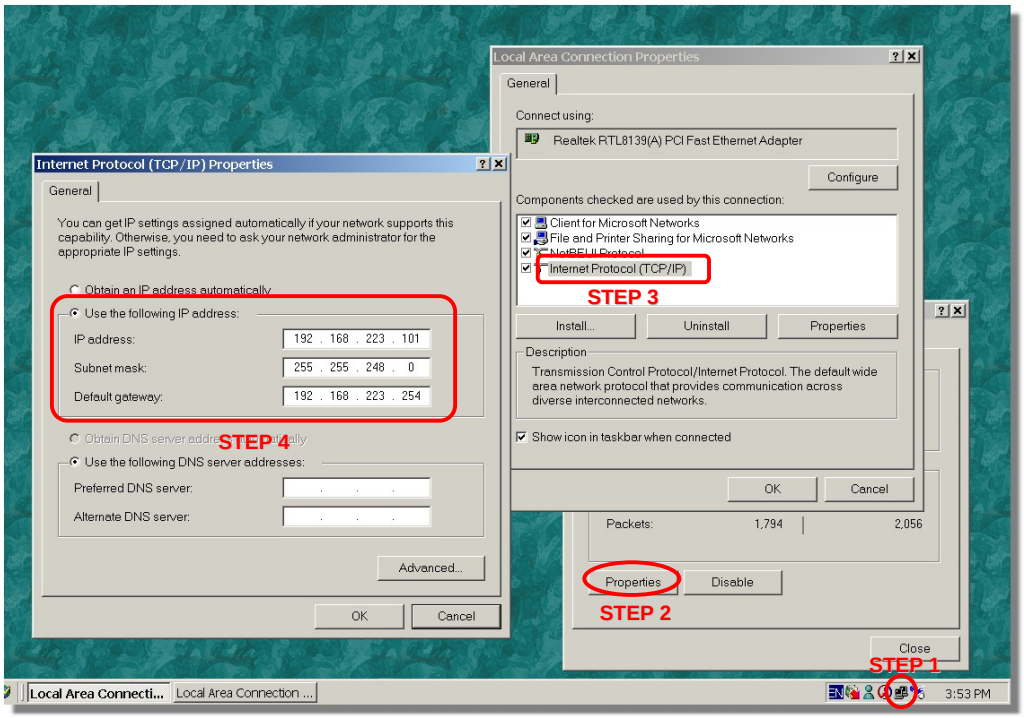

Local Area Connection Properties
General
Connect using:
Realtek RTL8139(A) PCI Fast Ethernet Adapter
Configure
Components checked are used by this connection:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
Internet Protocol (TCP/IP)
STEP 3
Install...
Uninstall
Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in taskbar when connected
OK
Cancel
Packets: 1,794 2,056
Properties
Disable
STEP 2
Close
STEP 1
Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 223 . 101
Subnet mask: 255 . 255 . 248 . 0
Default gateway: 192 . 168 . 223 . 254
STEP 4
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel
Local Area Connecti...
Local Area Connection ...
3:53 PM

Figure 4-1 Manual IP setting

Step 1:
Double click on the network connection status icon on the task bar. This should bring up a window showing the status of the current network connection. If there is no network status icon on the task bar, please go to the "Start -> Settings -> Network -> Local Connection" of the task bar's Start menu.

Step 2:
Click on the "property" icon.

Step 3:
Double click on the "Internet Protocol (TCP/IP)

Step 4:

Click on “Use the following IP address” button and enter the computer’s address manually. This IP address must be on the same subnet as the switch but different from the switch’s IP. Please make sure the IP is not used by other network device. If the switch’s IP address is of factory’s default value. We recommend enter the following for computer’s IP**:**

IP Address: 192.168.223.101
Subnet Mask: 255.255.248.0
Gateway: 192.168.223.254

Click “Okay” after finish entering the IP.

***Note:** an alternative method is to change the switch’s IP to the same subnet as the computer. Please use console-port management to change switch’s IP.*

***Note2:** If IP address of the switch is lost, please use console port management to find the switch’s IP address.*

***Note3:** The SNMP-FSH2602MG has DHCP client ability. This allows DHCP server (or router) to assign IP automatically. However, we do not recommend turning on the DHCP client because the DHCP server assign the IP randomly. The DHCP client should be used only when connecting directly to Cable Modem (for remote management) whose service provider uses DHCP for IP assignment.*

Now, you will be able to access the switch by typing in the switch’s IP address on the web browser.

Remote Management

In this section, you will learn how to setup your computer and the router for remote web management. Remote management allows MIS to manage a switch from outside of the switch’s IP domain or from Internet. Depending on the type of Internet connection you have, there are two ways to setup the switch to be available through Internet.

Direct Connection to Internet

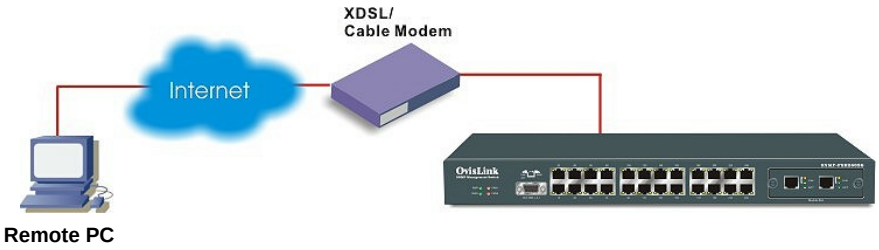


Figure 4-2 Remote Management through direct Internet

If you have a fixed IP xDSL account or cable modem account, and there is no router in the network, you can connect your switch directly to Internet via xDSL modem/Cable Modem. However, this method is not recommended as the LAN will be directly exposed to the Internet.

Fixed IP: If your ISP has assigned you a fixed IP. Please go to the Switch’s IP configuration and enter the IP address, Subnet Mask, and Gateway information offered by your ISP. If your ADSL connection is PPPoE or PPTP type, you have to connect through a router for remote management.

Cable Modem: If your Cable service provider uses DHCP for IP assignment, please turn on the DHCP function under IP configuration. Make sure there is no DHCP server in the network. Then the Cable provider will assign the switch with an IP and Gateway. Go to the console port management to find out what IP has been assigned to the switch.

When the configuration is finished, the Remote PC can access the switch by typing the switch's IP address on the web browser.

Connect through Broadband Router

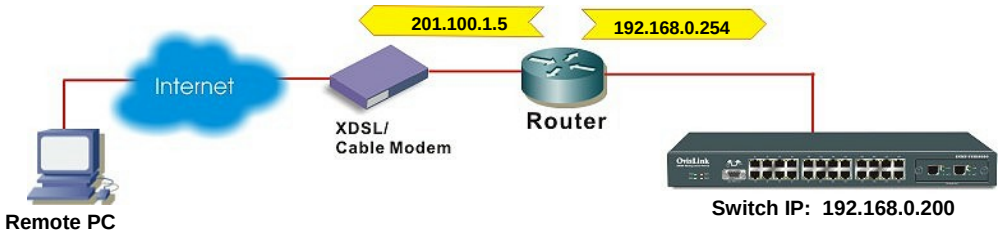


Figure 4-3 Remote Management through Broadband Router

If you have an IP sharing router in the network, you can open a virtual server on the router to allow the switch to be managed through Internet. This method is more recommended as the broadband router provides natural fire wall protector from hackers.

In the diagram above, the router has the WAN (given by the ISP) port IP address "201.100.1.5" and LAN port address "192.168.0.254". The switch's IP is "192.168.0.200". Please follow the instruction below to setup the router and switch for remote access:

On the Switch
- On the IP setting, set the gateway to Router's LAN port address 192.168.0.254
- Please make sure the subnet mask is the same as the router's.

On the Router
- Go to router's Virtual Server setting and open the Web port (TCP Port 80) to the switch's IP address 192.168.0.200
- If your router require enter the beginning and ending Port (from PortX to PortX), enter 80 for both.

Now the Remote PC will be able to access your switch by entering "201.100.1.5" in the Web browser's address field.

Get into the Web Management

After you have properly configured the computer and switch's IP, you can get into the web management by the following steps:

Step 1: Open the Internet Explorer

Step 2: Enter the switch's IP address in the Address field and press enter.

Step 3: When prompt for User's name and Password, enter the following information:

- User's Name: **admin**
- Password: **123**

You should see the following welcome screen after the process is completed:

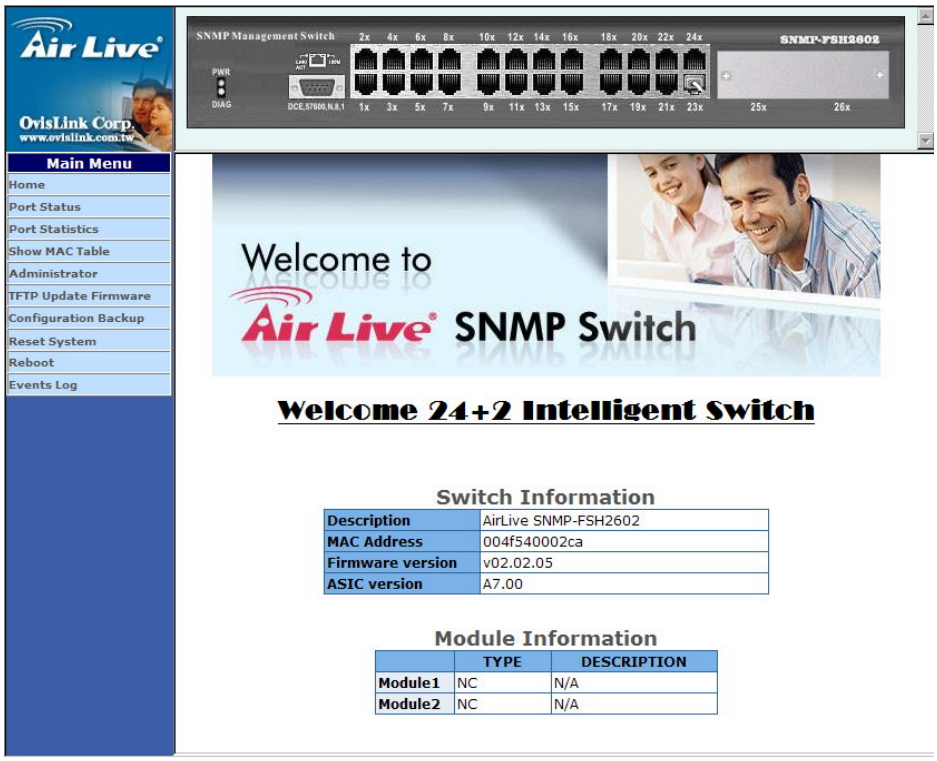


Figure 4-2 Main Web Management Screen

Menu Bar

On the left side of the screen is the Menu bar where you and click to configure management functions. Most configuration functions are under the "Administrator" menu. We will explain the menu items in the remaining section of this chapter.

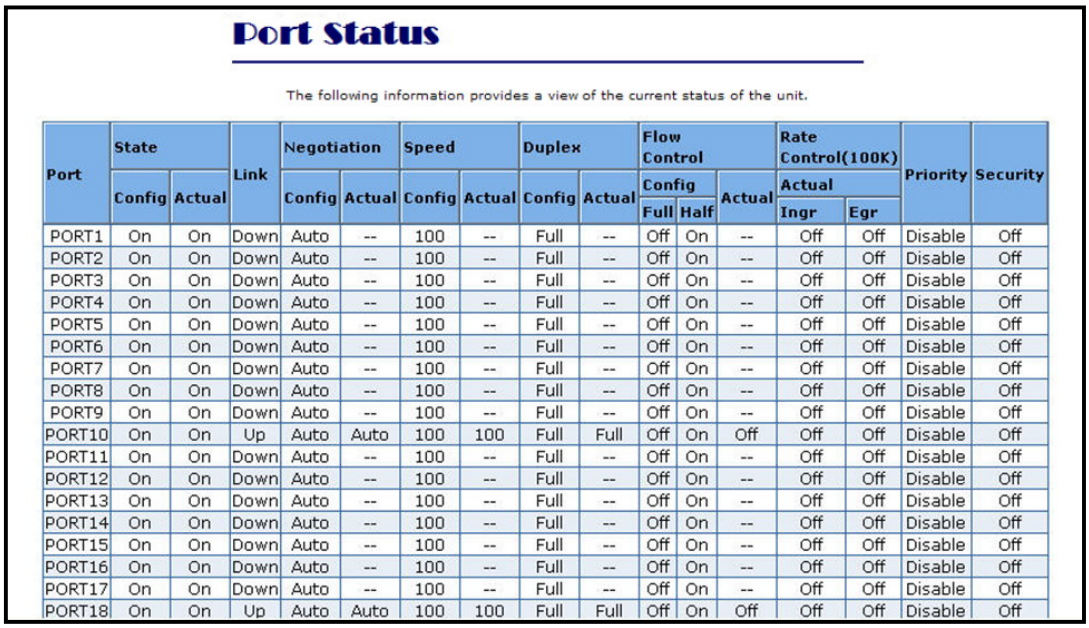
Top Switch Image.

The switch's image on the upper portion of the screen gives the quick overview of the port connection status. When a port is plugged in, the switch's image will show a "plug" on the corresponding port. **Click on a port will show the quick port status**. Please note that the switch's image shows a 2-port 1000Base-TX module even when there is no module installed. However, clicking on the module port state will show whether the port is installed. If only 1-port module is installed, Port-25 will show the status of the single module port.

Port Status

All Port Status

Click on “Port Status” of the left menu bar will bring up the general status for all the ports and modules.



Port Status

The following information provides a view of the current status of the unit.

Port	State		Link	Negotiation		Speed		Duplex		Flow Control			Rate Control(100K)		Priority	Security
	Config	Actual		Config	Actual	Config	Actual	Config	Actual	Config		Actual	Actual			
										Full	Half		Ingr	Egr		
PORT1	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT2	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT3	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT4	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT5	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT6	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT7	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT8	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT9	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT10	On	On	Up	Auto	Auto	100	100	Full	Full	Off	On	Off	Off	Off	Disable	Off
PORT11	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT12	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT13	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT14	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT15	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT16	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT17	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT18	On	On	Up	Auto	Auto	100	100	Full	Full	Off	On	Off	Off	Off	Disable	Off

Figure 4-3 All Port Status

State: Display port statuses: **disable or enable**. “Unlink” will be treated as “off ”.

Link Status: Down means “No Link”, UP means “Link”.

Auto Negotiation: Display the auto negotiation mode: auto/force/nway-force.

Speed status: Display 1000Mbps or 100Mbps or 10Mbps speed

Duplex status: Display full-duplex or half-duplex mode.

Flow Control: Full: Display the flow control is enabled or disabled in full mode.
Half: Display the backpressure is enabled or disabled in half mode.

Rate Control: Display the rate control setting.
Ingr: Display the port effective ingress rate of user setting.
Egr: Display the port effective egress rate of user setting.

Port Security: Display the port security is enabled or disabled.

Config: Display the state of user setting.

Atual: Display the negotiation result.

Single port status

User can also click the any port directly on the front panel of Home Page to get single port Status which is shown below.

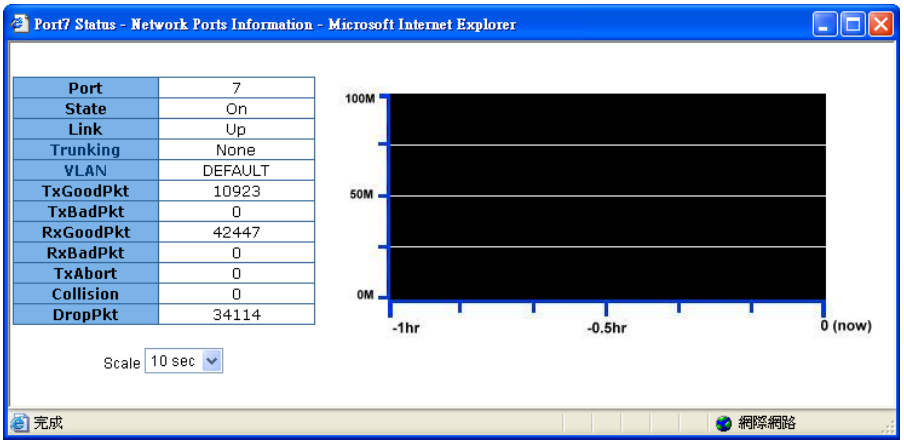


Figure 4-4 Single Port Status

The **State** shows whether the port has been installed. If no module is installed, the **State** of Port 25 and 26 will be off.

Port Statistics

There are three pages the switch provides for user to monitor the statistics of network traffic: **Port Summary**, **RMON Statistics(1)**, **RMON Statistics(1) Graph, RMON Statistics(2)**. Click on the Port Statistic will bring up the traffic statistics on Port Summary for all ports; click on the reset will refresh the counter.

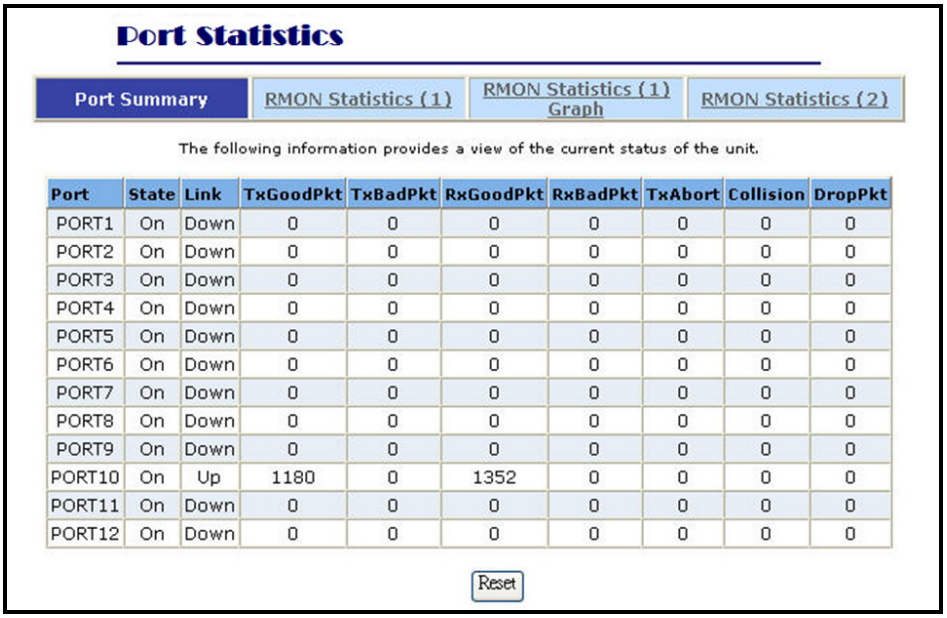
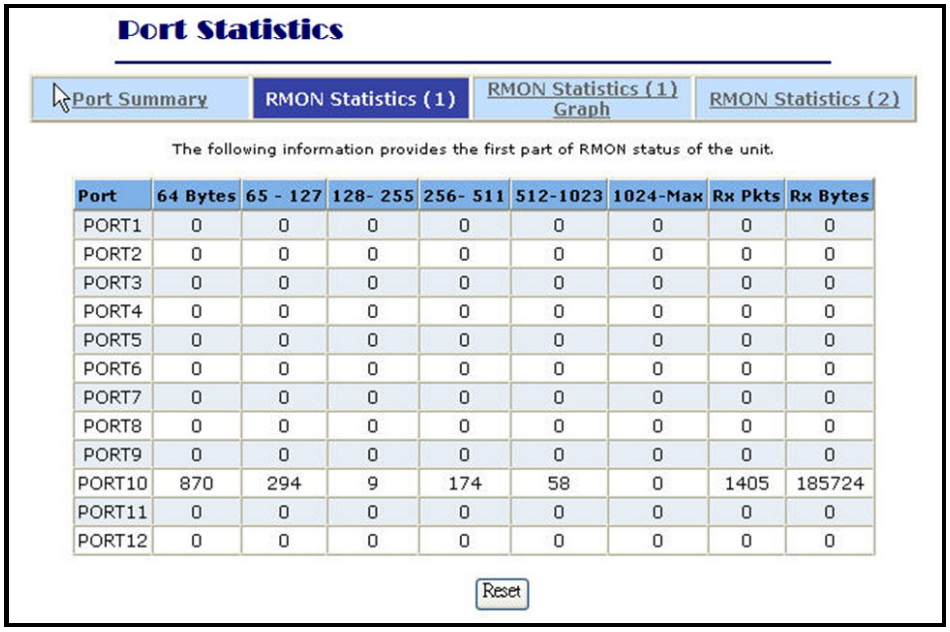

Port Statistics
Port Summary
RMON Statistics (1)
RMON Statistics (1) Graph
RMON Statistics (2)
The following information provides a view of the current status of the unit.
Port State Link TxGoodPkt TxBadPkt RxGoodPkt RxBadPkt TxAbort Collision DropPkt
PORT1 On Down 0 0 0 0 0 0 0
PORT2 On Down 0 0 0 0 0 0 0
PORT3 On Down 0 0 0 0 0 0 0
PORT4 On Down 0 0 0 0 0 0 0
PORT5 On Down 0 0 0 0 0 0 0
PORT6 On Down 0 0 0 0 0 0 0
PORT7 On Down 0 0 0 0 0 0 0
PORT8 On Down 0 0 0 0 0 0 0
PORT9 On Down 0 0 0 0 0 0 0
PORT10 On Up 1180 0 1352 0 0 0 0
PORT11 On Down 0 0 0 0 0 0 0
PORT12 On Down 0 0 0 0 0 0 0
Reset

Figure 4-5 Port Statistics

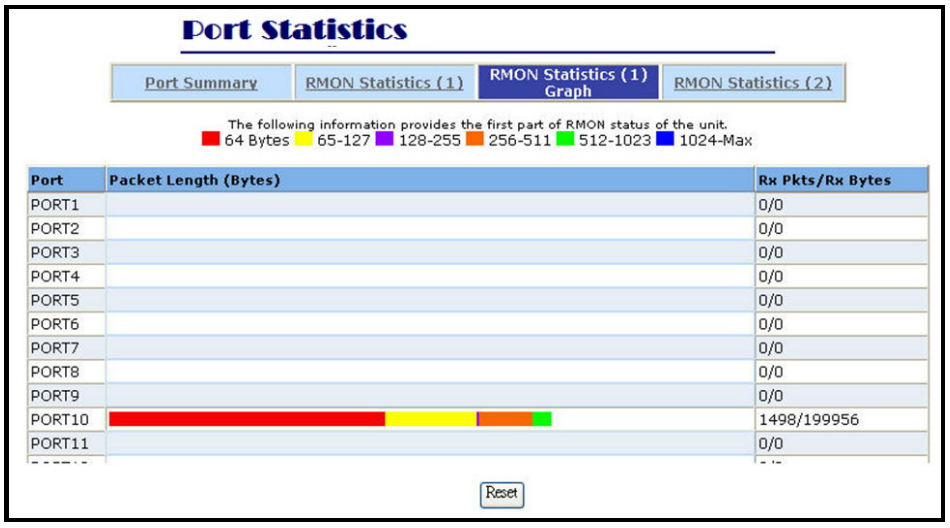
- **TXGoodPKT** – Number of good packets sent
- **TXBadPKT** – Number of bad packets sent
- **RXGoodPKT** – Number of good packets received
- **RXBadPKT** – Number of bad packets received
- **TXAbort** – Number of Aborted Packets
- **Collison** - Number of Collisions
- **DropPKT** - Number of Dropped Packets

The following two pages provide the statistics of RMON 1,2,3,9 groups. The first part collects the information about packets of frame size within ranges of 64 , 65-127, 128-255, 256-511, 512-1023, and 1024-1518 bytes, the total received packets and the total receives bytes.

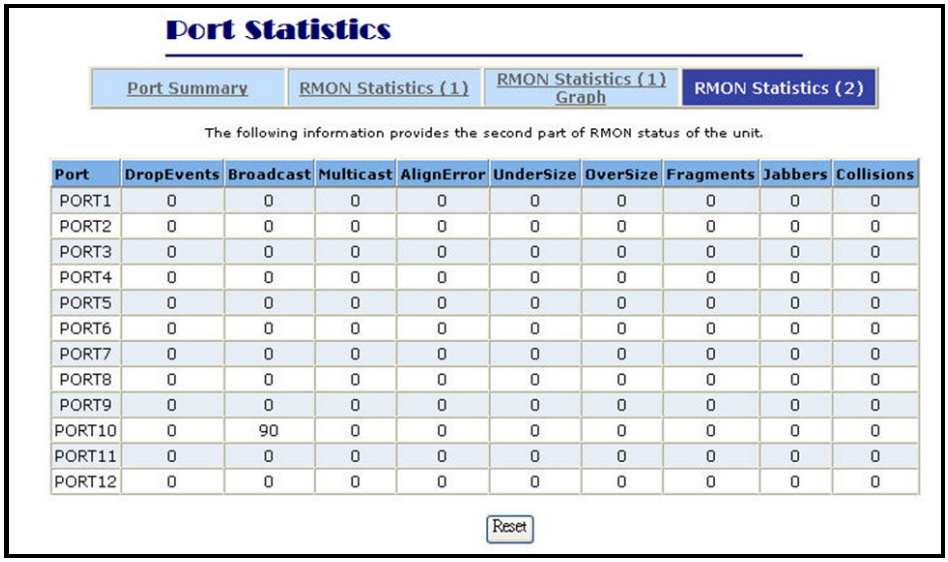
The second part collects the information about drop events, broadcast packets, multicast packets, alignment errors, undersize packets, oversize packets, fragments, jabbers and collisions.


Port Statistics
Port Summary
RMON Statistics (1)
RMON Statistics (1) Graph
RMON Statistics (2)
The following information provides the first part of RMON status of the unit.
Reset

Port	64 Bytes	65 - 127	128- 255	256- 511	512-1023	1024-Max	Rx Pkts	Rx Bytes
PORT1	0	0	0	0	0	0	0	0
PORT2	0	0	0	0	0	0	0	0
PORT3	0	0	0	0	0	0	0	0
PORT4	0	0	0	0	0	0	0	0
PORT5	0	0	0	0	0	0	0	0
PORT6	0	0	0	0	0	0	0	0
PORT7	0	0	0	0	0	0	0	0
PORT8	0	0	0	0	0	0	0	0
PORT9	0	0	0	0	0	0	0	0
PORT10	870	294	9	174	58	0	1405	185724
PORT11	0	0	0	0	0	0	0	0
PORT12	0	0	0	0	0	0	0	0


Port Statistics
Port Summary
RMON Statistics (1)
RMON Statistics (1) Graph
RMON Statistics (2)
The following information provides the first part of RMON status of the unit.
64 Bytes 65-127 128-255 256-511 512-1023 1024-Max
Reset

Port	Packet Length (Bytes)	Rx Pkts/Rx Bytes
PORT1		0/0
PORT2		0/0
PORT3		0/0
PORT4		0/0
PORT5		0/0
PORT6		0/0
PORT7		0/0
PORT8		0/0
PORT9		0/0
PORT10		1498/199956
PORT11		0/0



Port Statistics

Port Summary | RMON Statistics (1) | RMON Statistics (1) Graph | RMON Statistics (2)

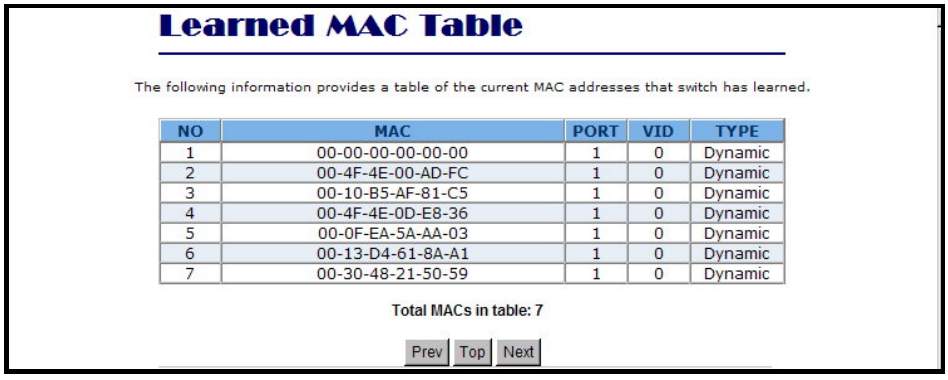
The following information provides the second part of RMON status of the unit.

Port	DropEvents	Broadcast	Multicast	AlignError	UnderSize	OverSize	Fragments	Jabbers	Collisions
PORT1	0	0	0	0	0	0	0	0	0
PORT2	0	0	0	0	0	0	0	0	0
PORT3	0	0	0	0	0	0	0	0	0
PORT4	0	0	0	0	0	0	0	0	0
PORT5	0	0	0	0	0	0	0	0	0
PORT6	0	0	0	0	0	0	0	0	0
PORT7	0	0	0	0	0	0	0	0	0
PORT8	0	0	0	0	0	0	0	0	0
PORT9	0	0	0	0	0	0	0	0	0
PORT10	0	90	0	0	0	0	0	0	0
PORT11	0	0	0	0	0	0	0	0	0
PORT12	0	0	0	0	0	0	0	0	0

Reset

Show MAC Table

The following information provides a table of the current MAC addresses that the switch has learned. Press “Prev” or “Next” button will browse previous 50 or next 50 items. The “Top” button will re-list the table from the first MAC.
A sorting function is implemented here. Clicking header on the top of table will bring a new sorted list of current content in the order of its title. For instance, clicking the “MAC” on the top of table will refresh the table by the index of “MAC”.



Learned MAC Table

The following information provides a table of the current MAC addresses that switch has learned.

NO	MAC	PORT	VID	TYPE
1	00-00-00-00-00-00	1	0	Dynamic
2	00-4F-4E-00-AD-FC	1	0	Dynamic
3	00-10-B5-AF-81-C5	1	0	Dynamic
4	00-4F-4E-0D-E8-36	1	0	Dynamic
5	00-0F-EA-5A-AA-03	1	0	Dynamic
6	00-13-D4-61-8A-A1	1	0	Dynamic
7	00-30-48-21-50-59	1	0	Dynamic

Total MACs in table: 7

Prev | Top | Next

Administrator

There are many management functions can be set or performed if you click the **Administrator** on Home Page, including:

- IP and Management mode
- Switch settings
- Console port information
- Port controls
- Trunking
- Filter database
- VLAN configuration
- Rapid Spanning tree
- Port Sniffer
- SNMP/Trap Manager
- Security Manager
- 802.1x Configuration
- Ping
- Agent /Stacking Management

In the following sessions, we will talk in detail about the management functions under the Administrator menu.

IP and Management Mode (Administrator menu)

User can modify the switch IP Settings by filling with the new value, then clicks “apply” button to confirm (save) his setting, then he must **reboot** switch, then new IP configuration value will be activated.

The **Management mode** indicates which role this switch is currently playing. “Agent Slave” means it is treated as a normal switch. “Agent Master” means the "Single IP" is activated and the switch is treated as agent manager. ”Stacking slave” is used only when this switch is going to be a member of stacking set. This setting will force the switch to activate spanning tree protocol and some VLAN settings for preparation of stacking switches. “Stacking Master” does the same tasks too, but it plays the role of manager of the whole stacking switches. Only the “Stacking Slave” can be added into the members of a stacking set under one “Stacking master”. The default management mode is "Agent Slave".

The extra “Agent IP” setting is necessary for the “Single IP” management. It defines the IP and the subnet mask the master switch will be assigned, which are in the same IP domain as the managed hosts’ one.

User can confine the “Single IP” function to local management by assigning the agent IP to the same one as switch IP. Different from original IP forwarding method, it uses a method like webpage link and won’t increase the loading of switch.

”Agent IP “setting and “Agent management” in the main menu will not show up if the agent mode is set as “Slave”.

[Note] If any of the value is changed in this field, reboot is necessary.

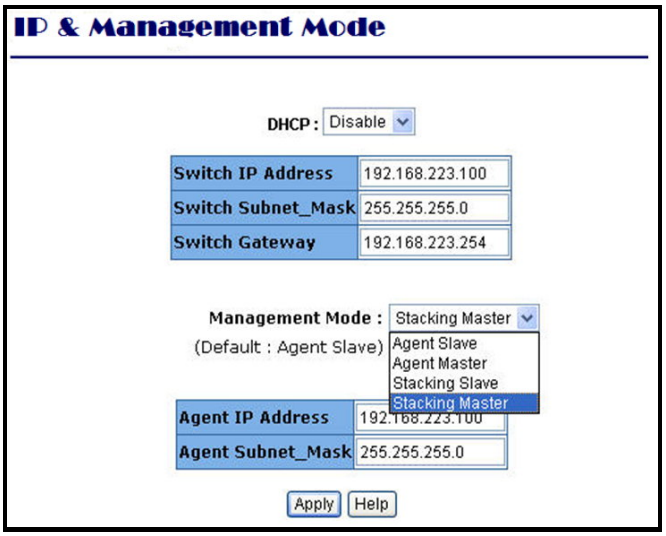


Figure 4-6 IP Configuration

Note3: We do not recommend turning on the DHCP client because the DHCP server assign the IP randomly. Therefore, users will need to use the Console Port to find the IP address after assignment. The DHCP client should be used only when connecting directly to Cable Modem (for remote management) whose service provider uses DHCP for IP assignment.

Switch Setting (Administrator menu)

The switch setting menu under the Administrator's menu is where you can configure auto-aging time, Broadcast Storm Control, 802.1p Priority, and to enable the 802.1x protocol. It also provides basic information about the switch and module.

Advanced settings

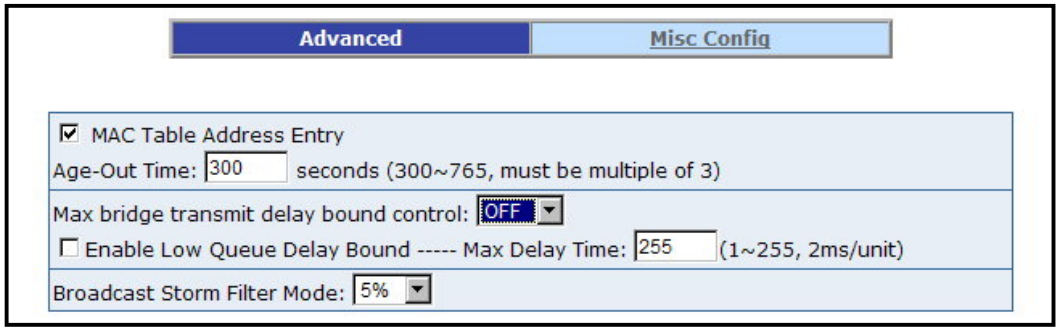

Advanced
Misc Config
MAC Table Address Entry
Age-Out Time: 300 seconds (300~765, must be multiple of 3)
Max bridge transmit delay bound control: OFF
Enable Low Queue Delay Bound ----- Max Delay Time: 255 (1~255, 2ms/unit)
Broadcast Storm Filter Mode: 5%

Figure 4-9 Advance Switch Settings

- **MAC Address Age-out Time**

  Type the number of seconds that an inactive MAC address remains in the switch's address table. The valid range is 300~765 seconds. Default is 300 seconds.

- **Max bridge transit delay bound control**

  Limit the packets queuing time in switch. If enable, the packets queued exceed will be drop. These valid values are 1sec, 2 sec,4 sec and off. Default is 1 seconds.

  NOTE: *Make sure of "Max bridge transit delay bound control" is enabled before enable Delay Bound, because Enable Delay Bound must be work under "Max bridge transit delay bound control is enabled" situation.*

- **Broadcast Storm Filter**

  To configure broadcast storm control, enable it and set the upper threshold for individual ports. The threshold is the percentage of the port's total bandwidth used by broadcast traffic. When broadcast traffic for a port rises above the threshold you set, broadcast storm control becomes active. The valid threshold value is 5%, 10%, 15%, 20%, 25% and off.

Priority Queue Service settings

(Administrator Menu -> Switch Settings->Advanced)
"The Priority Queue Service settings" is where you can configure the 802.1p Priority and QoS settings. This is also the place where users can enable or disable the 802.1x authentication protocol. You can find this setting in the Administrator->Switch Settings ->Advanced menu.

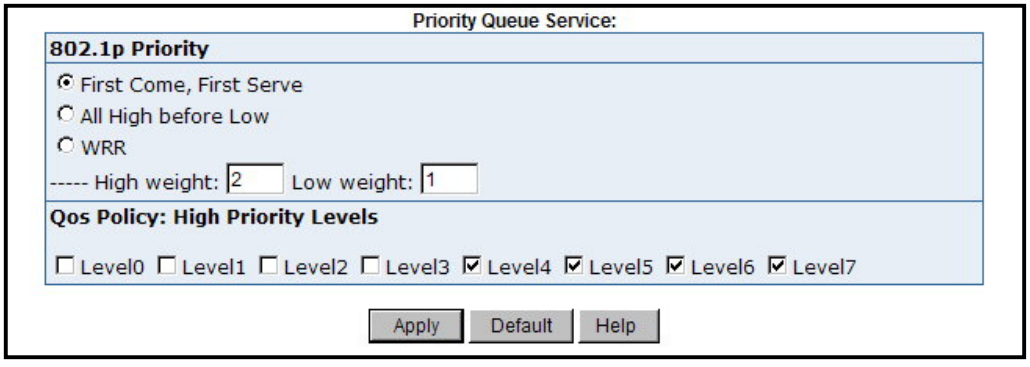


Figure 4-10 802.1p Priority Settings

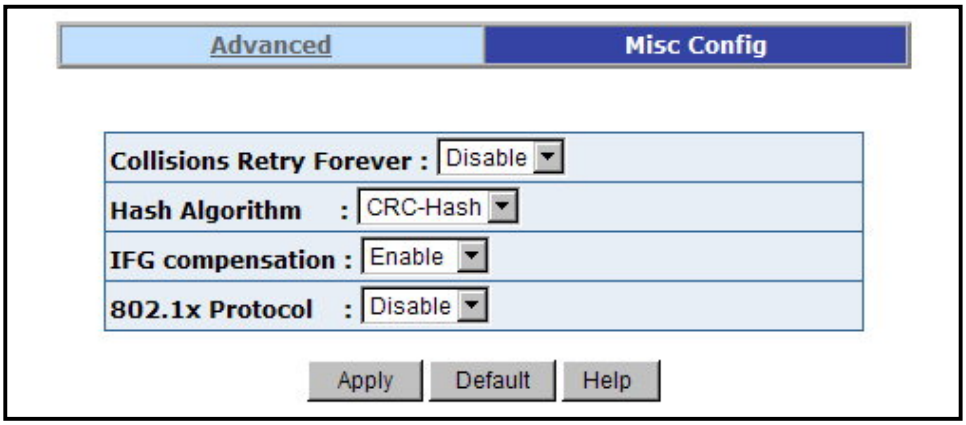
- **802.1p Priority**

  First Come First Service: The sequence of packets sent is depending on arrive orders.

  All High before Low: The high priority packets sent before low priority packets.

  WRR: Weighted Round Robin. Select the preference given to packets in the switch's high-priority queue. These options represent the number of high priority packets sent before one low priority packet is sent. For example, 5 High：2 Low means that the switch sends 5 high-priority packets before sending 2 low- priority packets.

  Enable Delay Bound: Limit the low priority packets queuing time in switch. Default Max Delay Time is 255ms. If the low priority packet stays in switch exceed Max Delay Time, it will be sent. The valid range is 1-255ms.



- **QoS policy: High Priority Levels**

  0~7 priority level can map to high or low queue.

- **Collisions Retry Forever**

  Disable – In half duplex, collision-retry maximum is 48 times and packet will be dropped if collision still happen.

  Enable – In half duplex, if happen collision will retry forever.

- **802.1x Protocol**

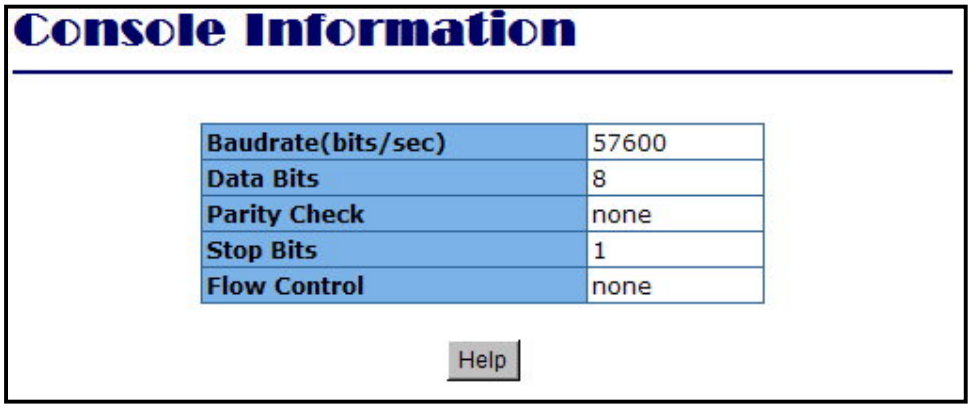
  Enable or disable 802.1x protocol.

Console Port Information (Administrator menu)

Console is a standard UART interface to communicate with Serial Port.

User can use windows HyperTerminal program to link the switch. Connect To -> Configure:

Bits per seconds: 57600
Data bits: 8
Parity: none
Stop Bits: 1
Flow control: none



Port Controls (Administrator menu)

User may modify or change mode operation in this page. Please select a port under the "Port" field and modify the port configuration in the subsequent field.

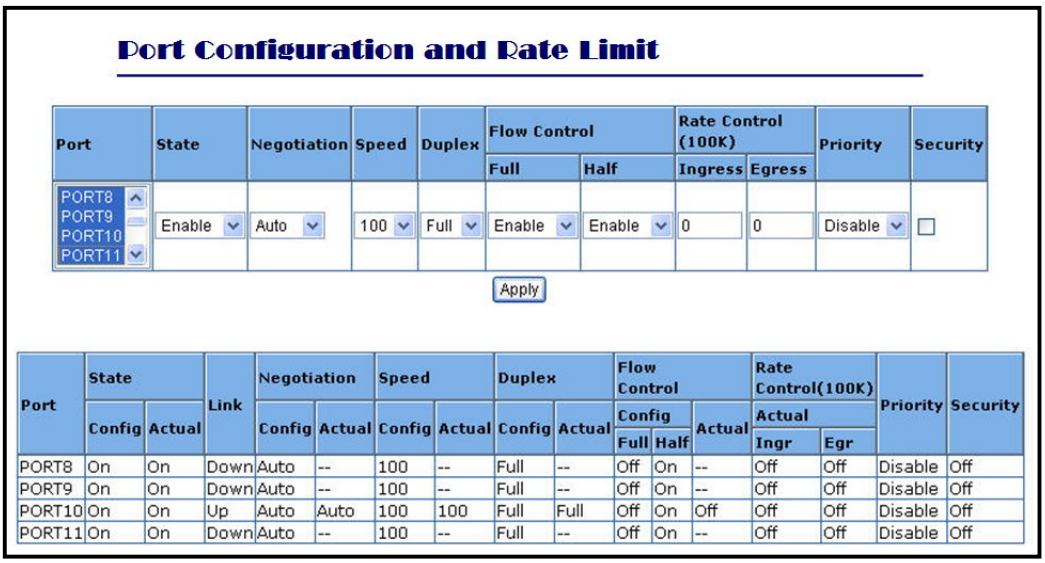
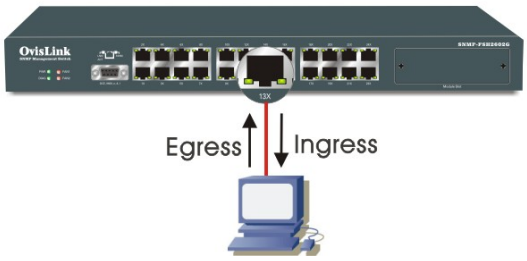


Figure 4-11 Port Control Settings

- **State:** User can disable or enable this port.
- **Auto Negotiation:** User can set auto negotiation mode is Auto, Nway (specify the speed/duplex on this port and enable auto-negotiation), Force of per port.
- **Speed:** User can set 100Mbps or 10Mbps speed on Port1~Port24; set 1000Mbps, 100Mbps or 10Mbps speed on Port25~Port26 (depend on module card mode).
- **Duplex:** User can set full-duplex or half-duplex mode of per port.
- **Flows control:**
  - **Full:** User can set flow control function is enable or disable in full mode.
  - **Half:** User can set backpressure is enable or disable in half mode.
- **Rate Control:** port1 ~ port 24, supports by-port ingress and egress rate control. For example, assume port 1 is 10Mbps, users can set it's effective egress rate at 1Mbps and ingress rate at 500Kbps. Device will perform flow control or backpressure to confine the ingress rate to meet the specified rate.
- **Ingress:** Type the port effective ingress rate. The valid range is 0 ~ 1000. The unit is 100K.
  - 0: disable rate control.
  - 1 ~ 1000: valid rate value
- **Egress:** Type the port effective egress rate. The valid range is 0~1000. The unit is 100K.
  - 0: disable rate control.
  - 1 ~ 1000: valid rate value.
- **Port Priority:**
- **Port Security:** A port in security mode will be "locked" without permission of address learning. Only the incoming packets with MAC already existing in the address table can be forwarded normally. User can disable the port from learning any new MAC addresses, then use the static MAC addresses screen to define a list of MAC addresses that can use the secure port. Enter the settings, then click Apply button to change on this page.

Ingress and Egress Control

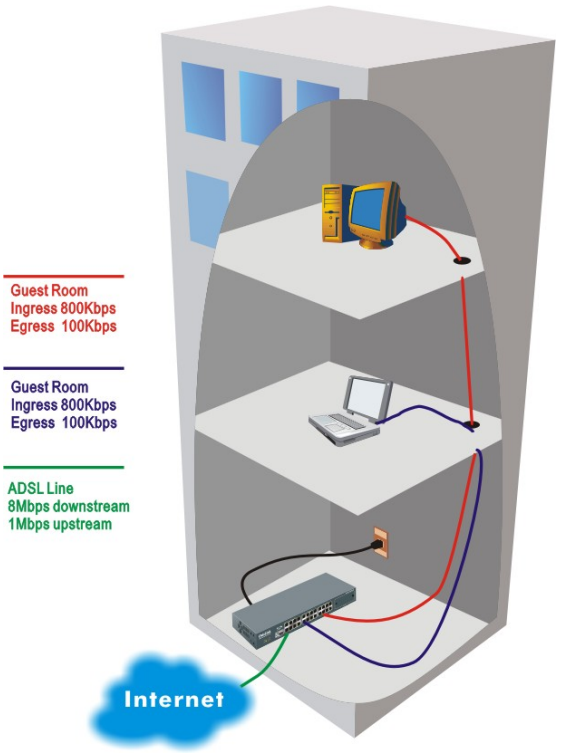


Function : Ingress and Egress control allow users to set the maximum speed for which a certain port can operate. Ingress means the data rate coming into the port, Egress means the data rate going out of the port. For example, if a port's Ingress rate is set to 1000K and Egress rate is set to 100K. That means the device connected to this port is limited to 1000Kbps receiving (downstream) speed and 100Kbps sending speed (upstream). This

type of control is called “bandwidth management.” Separate bandwidth management for incoming and outgoing traffic is important because broadband connection such as ADSL has different upstream and downstream speed.

Application

Hotel: For hotels that provide internet service to the guest rooms, it is necessary to limit every room’s bandwidth so not a single user can consume the entire broadband speed. For example if the hotel purchase a 8Mbps downstream and 1Mbps upstream ADSL service and the typical number of simultaneous users is 10, then the switch should limit the downstream speed to 800K and upstream speed to 100K. This will ensure each user will get sufficient bandwidth and prevent one user consuming all the bandwidth. Hotel can even provide services with difference speed ratings for different prices,

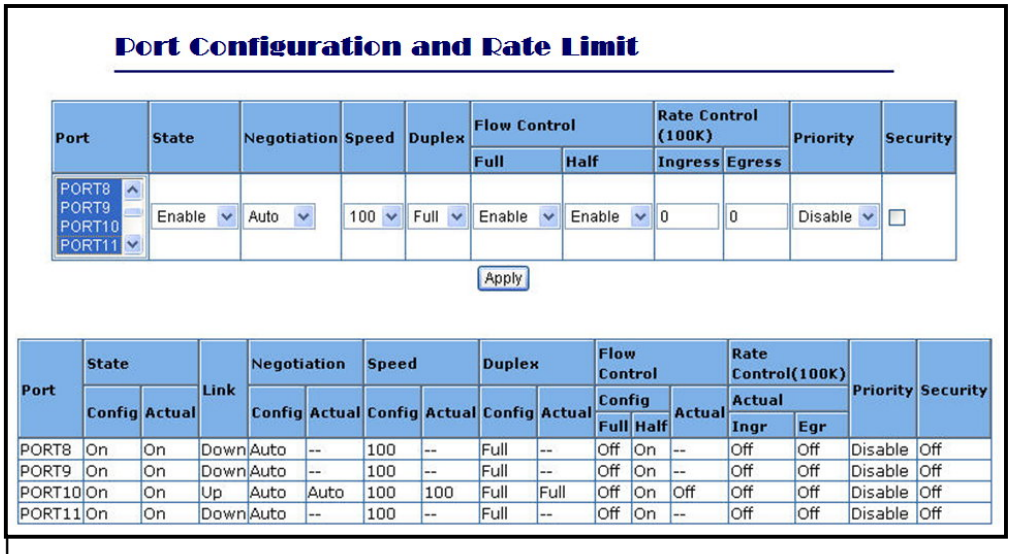


Broadband Building: Broadband connection has become almost a requirement for modern buildings. Commonly, a building or community would rent high-speed broadband connection and share it among the households. Bandwidth management is necessary to ensure not a single household will occupy the entire bandwidth and hence guarantee the bandwidth of each household.

Server Protection: Bandwidth management can be used to discourage unwanted intruders. For example, a port that is connected to an ftp server can be set to allow Egress at maximum speed but Ingress at minimum rate. This will allow other people quickly download from the server, but restrict on upload.

How to Setup

Step 1: Under the web configuration, choose **Administrator->Port Control**



Port Configuration and Rate Limit

Port	State	Negotiation	Speed	Duplex	Flow Control		Rate Control (100K)		Priority	Security
					Full	Half	Ingress	Egress		
PORT8 PORT9 PORT10 PORT11	Enable	Auto	100	Full	Enable	Enable	0	0	Disable	

Apply

Port	State		Link	Negotiation		Speed		Duplex		Flow Control			Rate Control(100K)		Priority	Security
	Config	Actual		Config	Actual	Config	Actual	Config	Actual	Config		Actual	Actual			
										Full	Half		Ingr	Egr		
PORT8	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT9	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off
PORT10	On	On	Up	Auto	Auto	100	100	Full	Full	Off	On	Off	Off	Off	Disable	Off
PORT11	On	On	Down	Auto	--	100	--	Full	--	Off	On	--	Off	Off	Disable	Off

ect the port where you want to control the rate

Step 3: Under the field "**Rate Contro**l", enter values in the **Ingr(ingress)** and **Egr(egress)** field accordingly:

- **Ingress:** Type the port effective ingress rate. The valid range is 0 ~ 1000. The unit is 100K.
  - 0: disable rate control.
  - 1 ~ 1000: valid rate value
- **Egress:** Type the port effective egress rate. The valid range is 0~1000. The unit is 100K.
  - 0: disable rate control.

1 ~ 1000: valid rate value.

Trunking (Administrator menu)

The Link Aggregation Control Protocol (LACP) provides a standardized means for exchanging information between Partner Systems on a link to allow their Link Aggregation Control instances to:

1. Reaching agreement on the identity of the Link Aggregation Group to which the link belongs
2. Move the link to that Link Aggregation Group
3. Enable its transmission and reception functions in an orderly manner.

In conclusion, Link aggregation lets you group up to eight consecutive ports into a single dedicated connection. This feature can expand bandwidth to a device on the network. **LACP operation requires full-duplex mode,** more detail information refers to IEEE 802.3ad

Aggregator setting

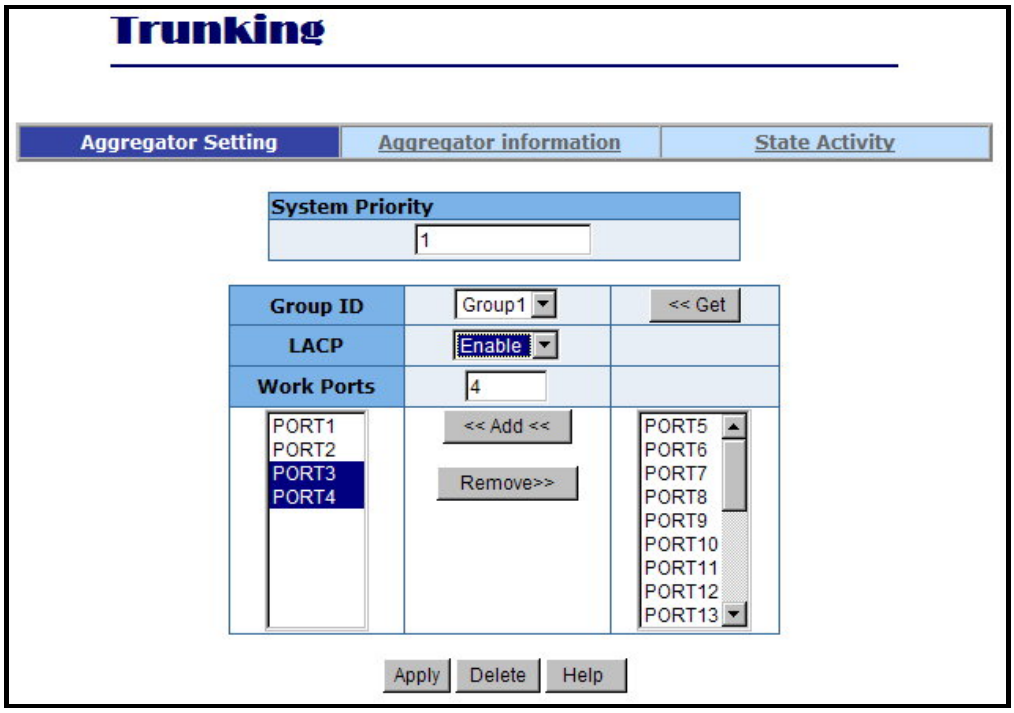


Figure 4-12 Trunking

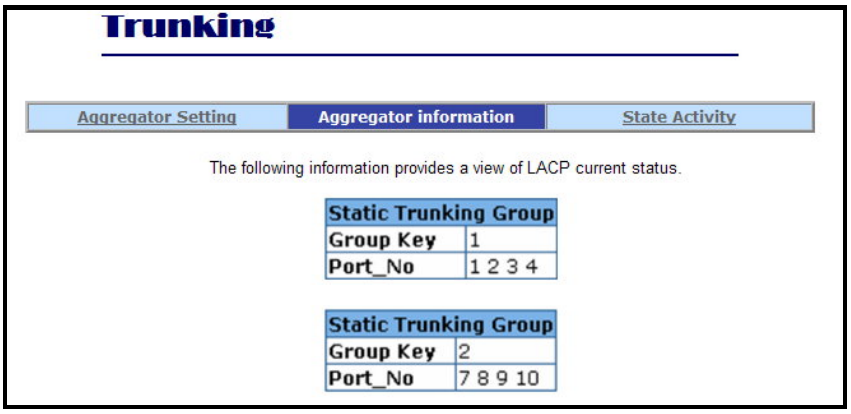
- **System Priority:** A value used to identify the active LACP. The switch with the lowest value has the highest priority and is selected as the active LACP.
- **Group ID:** There are seven trunk groups to provided configure. Choose the "group id" and click "Get".
- **LACP:** If enable, the group is LACP static trunking group. If disable, the group is local static trunking group. All ports support LACP dynamic trunking group. If connecting to the device that also supports LACP, the LACP dynamic trunking group will be created automatically.
- **Work ports:** Allow max four ports can be aggregated at the same time. If LACP static trunking group, the exceed ports is standby and able to aggregate if work ports fail. If local static trunking group, the number must be as same as the group member ports.
  - Select the ports to join the trunking group. Allow max four ports can be aggregated at the same time.
  - If LACP enable, you can configure LACP Active/Passive status in each port on State Activity page.
  - Click Apply.

Aggregator Information

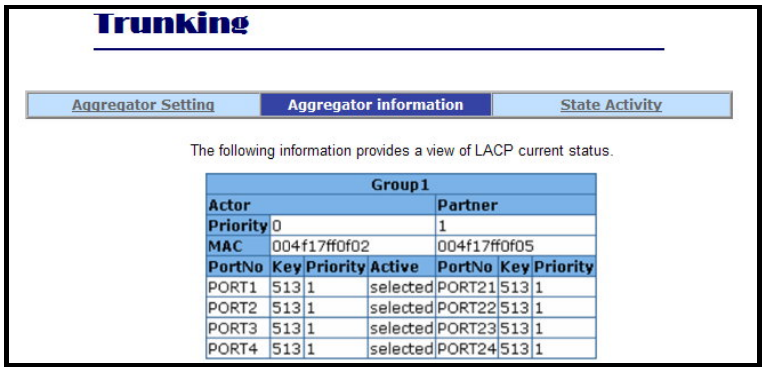
Clicking on the Aggregator Information will show the state of the aggregator. Three different screens can be shown to indicate the different status:

1. If following screen is shown, it indicates no group is active. LACP is not working.

2. If the following screen is shown, this indicates static Trunking groups has been made.



3. If the following page is shown, it indicates LACP trunking group has been made.


Trunking
Aggregator Setting
Aggregator information
State Activity
The following information provides a view of LACP current status.
Group1
Actor
Partner
Priority 0 1
MAC 004f17ff0f02 004f17ff0f05
PortNo Key Priority Active PortNo Key Priority
PORT1 513 1 selected PORT21 513 1
PORT2 513 1 selected PORT22 513 1
PORT3 513 1 selected PORT23 513 1
PORT4 513 1 selected PORT24 513 1

State Activity

Click on the State Activity will show which ports are working in trunking mode. User can also enable and disable LACP control from here.

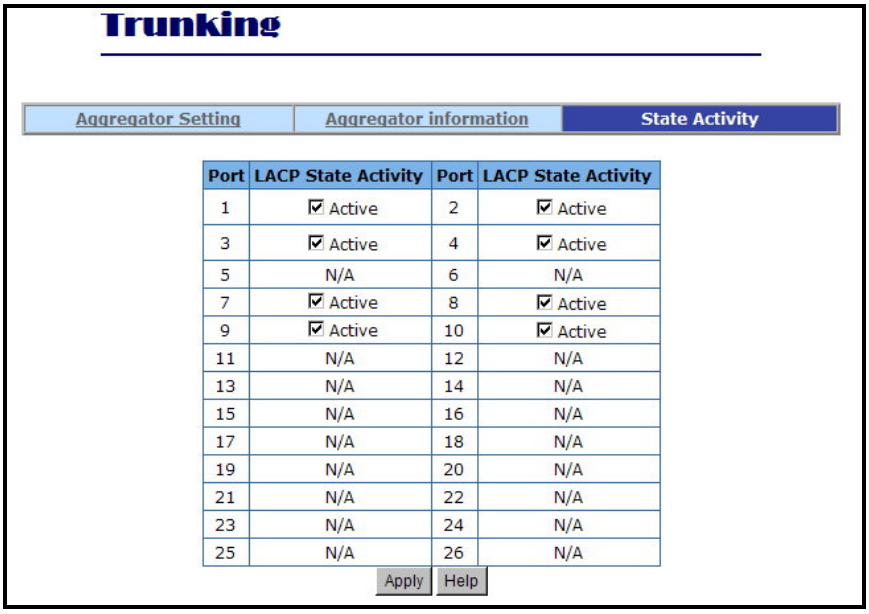


Figure 4-13 Trunking State Activity

- **Active** (select)**:** The port automatically sends LACP protocol packets.
- **N/A** (no select)**:** The port does not automatically sends LACP protocol packets, and responds only if it receives LACP protocol packets from the opposite device.

Note:

- *A link that has either two active LACP ports or one active port can perform dynamic LACP trunking.*
- *A link has two N/A LACP ports will not perform dynamic LACP trunking because both ports are waiting for and LACP protocol packet from the opposite device.*
- *If you are active LACP's actor, when you are select trunking port, the active status will be created automatically.*

Filter Database (Administrator menu)

IGMP Snooping

The SNMP-FSH2602MG supports multicast IP, one can enable IGMP protocol on web management's switch setting advanced page, then display the IGMP snooping information in this page, you can view difference multicast group, VID and member port in here, IP multicast addresses range from 224.0.0.0 through 239.255.255.255.

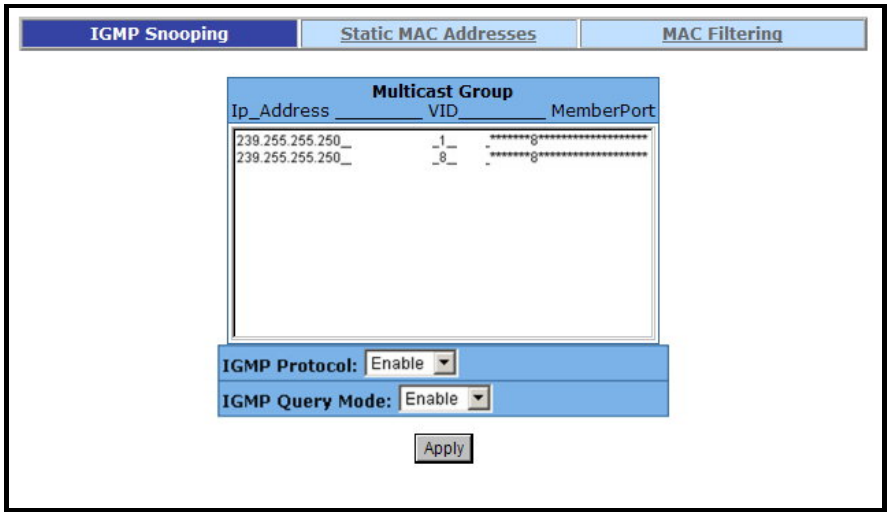


Figure 4-14 IGMP Snooping

The Internet Group Management Protocol (IGMP) is an internal protocol of the Internet Protocol (IP) suite.

IP manages multicast traffic by using switches, routers, and hosts that support IGMP. Enabling IGMP allows the ports to detect IGMP queries and report packets and manage IP multicast traffic through the switch. IGMP have three fundamental types of message as follows:

Message	Description
Query	A message sent from the queries (IGMP router or switch) asking for a response from each host belonging multicast group.
Report	A message sent by a host to the queries to indicate that the host wants to be or is a member of a given group indicated in the report message.
Leave Group	A message sent by a host to the queries to indicate that the host has quit being a member of a specific multicast group.

Table 4-1 IGMP Snooping Messages

Static MAC Address

When you add a static MAC address, it remains in the switch's address table, regardless of whether the device is physically connected to the switch. This saves the switch from having to re-learn a device's MAC address when the disconnected or powered-off device is active on the network again.

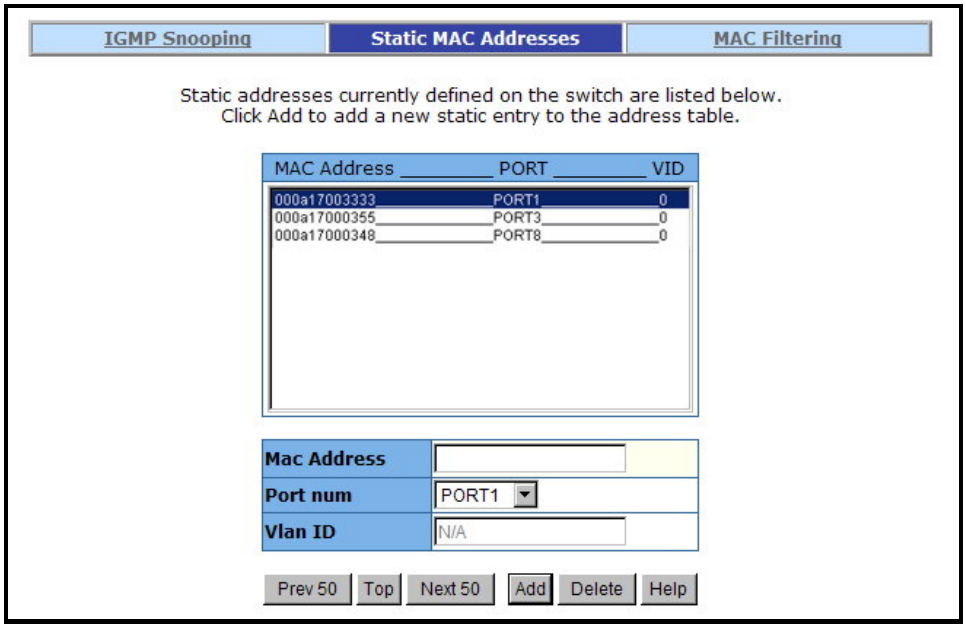


Figure 4-15 Static MAC address

- At the main menu, click administrator →Filter Database →Static MAC Address.
- In the MAC address box, enter the MAC address to and from which the port should permanently forward traffic, regardless of the device's network activity.
- In the Port Number box, enter a port number.
- If tag-based (IEEE 802.1Q) VLANs are set up on the switch, static addresses are associated with individual VLANs. Type the VID (tag-based VLANs) to associate with the MAC address.
- Click the Add.

MAC filtering

MAC address filtering allows the switch to drop unwanted traffic. Traffic is filtered based on the destination addresses.

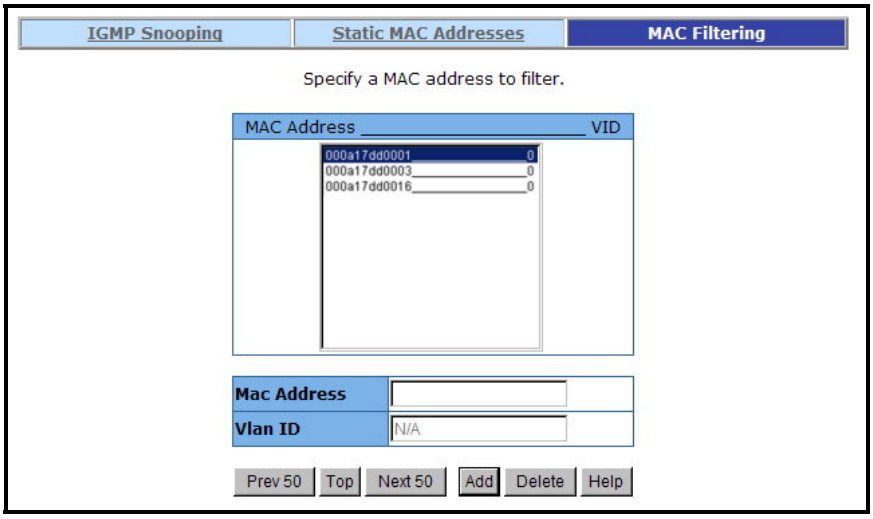


Figure 4-16 MAC filtering

- In the MAC Address box, enter the MAC address that wants to filter.
- If tag-based (802.1Q) VLAN are set up on the switch, in the VLAN ID box, type the VID to associate with the MAC address.
- Click the Add.
- Choose the MAC address that you want to delete and then click the Delete.

VLAN configuration (Administrator menu)

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain. It allows you to isolate network traffic so only members of the VLAN receive traffic from the same VLAN members. Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plug into the same switch physically.

The SNMP-FSH2602MG switch supports port-based, 802.1Q (tagged-based) and protocol-base VLAN in web management page. In the default configuration, VLAN support is disabled. You can enable the VLAN function by choosing “Port Based VLAN” or “802.1Q” VLAN.

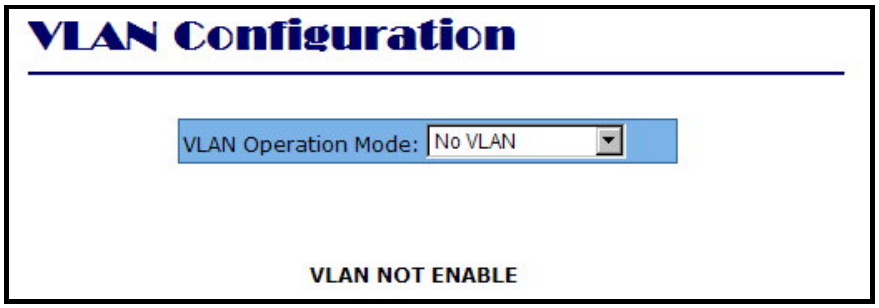


Figure 4-16 Enable VLAN configuration

Port-based VLAN

In port-based VLAN, users group member ports into different VLAN groups. Packets can only be broadcast among only members of the same VLAN group. However, overlapping ports between different VLAN groups can be used for device sharing purpose. If the port-based VLAN enabled, the VLAN-tagging is ignored.

802.1Q Tag-based VLAN

Tagged-based VLAN is an IEEE 802.1Q specification standard. Therefore, it is possible to create a VLAN across devices from different switch venders. IEEE 802.1Q VLAN uses a technique to insert a "tag" into the Ethernet frames. Tag contains a VLAN Identifier (VID) that indicates the VLAN numbers. Since each packet carries the VLAN ID of its traffic domain, the VLAN groups are no longer confined by the ports.

802.1v Protocol-based VLAN

Function:
802.1v not only allows VLAN assignment by Port, but also by the layer3 protocol for which the packet runs. For example, we can define VLAN group 1 as any packet with VID value of 1 and that runs on IP protocol. With 802.1Q TAG VLAN, the switch can support VLAN grouping through multiple switches, adding the 802.v protocol VLAN classification, it is possible to group VLAN by protocol through multiple switches

SNMP-FSH2602MG will support protocol-based VLAN classification by means of both built-in knowledge of layer 2 packet formats used by selected popular protocols, such as Novell IPX and AppleTalk's EtherTalk, and some degree of programmable protocol matching capability.

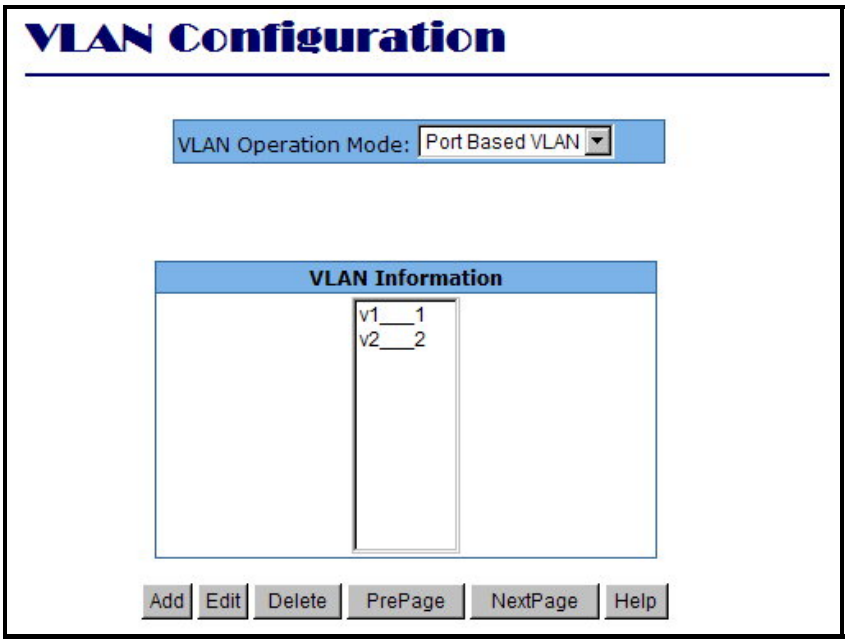
IEEE 802.1v provides user to classify the packet through untagged port. There are two possible strategies of the 802.1v supporting: Port-based VLAN and Port-and-Protocol-based VLAN. We can support both Port-based VLAN and Port-and-Protocol-based VLAN with our product. User set the VID to mark the packet from untagged port. Then, the packet can be scheduled by the way of the IEEE 802.1q.

Application:
Office and Enterprise: OvisLink Corp. supports protocol base VLAN classification in IP, IPX, AppleTalk protocols and many other formats. It is possible to setup VLAN groups based on layer-3 protocol, so far example, users in the office using Apple Macintosh and IBM PC can be put automatically in different VLAN groups.

GVRP (Generic Attribute Registration Protocol)

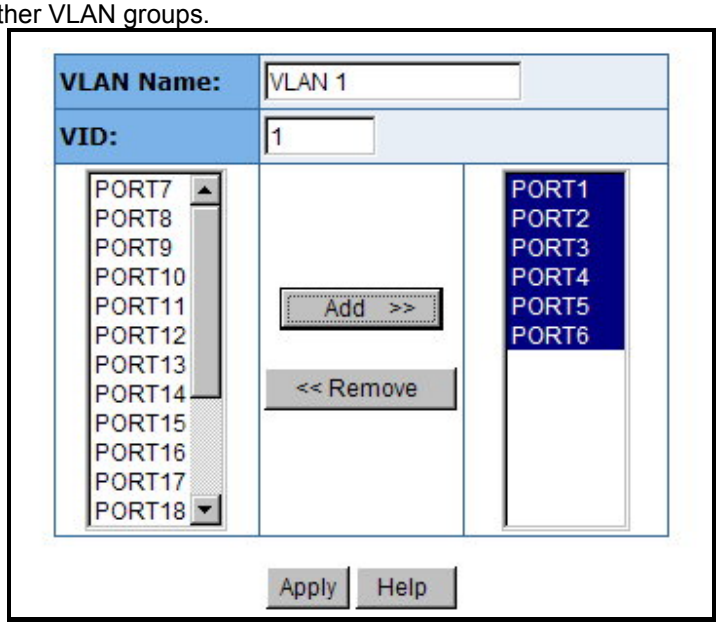
GVRP allows automatic VLAN configuration between the switch and nodes. If the switch is connected to a device with GVRP enabled, you can send a GVRP request using the VID of a VLAN defined on the switch, the switch will automatically add that device to the existing VLAN.

Configuring Port Based VLAN



Figre 4-17 Configure Port-Based VLAN

- Click Add to create a new VLAN group.
- Enter the VLAN name, group ID and select the members for the new VLAN.
- Click Apply.
- If there are many groups that over the limit of one page, you can click the “Next Page” to view other VLAN groups.



NOTE: *If the trunk groups exist, you can see it (ex: TRK1, TRK2…) in select menu of ports, and you can configure it is the member of the VLAN or not.*

Configuring 802.1Q and 802.1v VLAN

This page, user can create Tag-based VLAN, and enable or disable GVRP protocol. There are 4093 VLAN groups to provide configure. Enable 802.1Q VLAN, the all ports on the switch belong to default VLAN, VID is 1. The default VLAN can't be deleted.

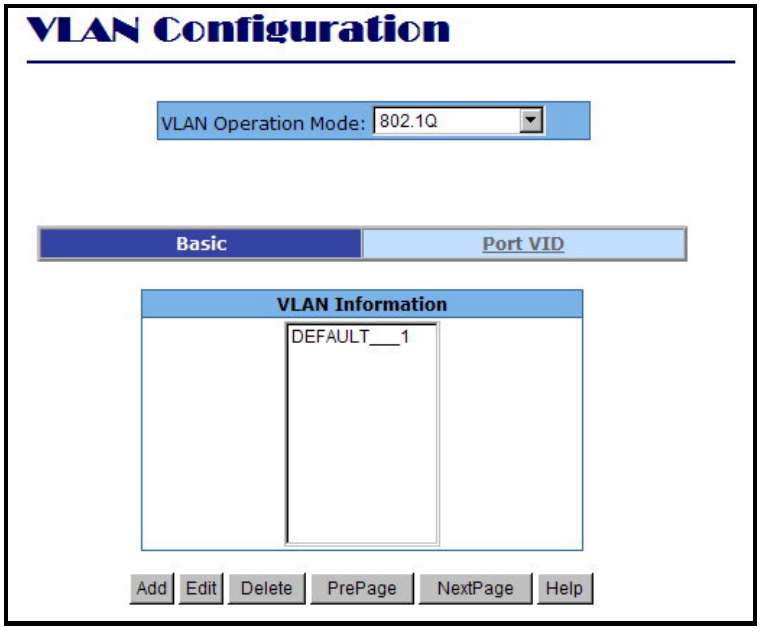
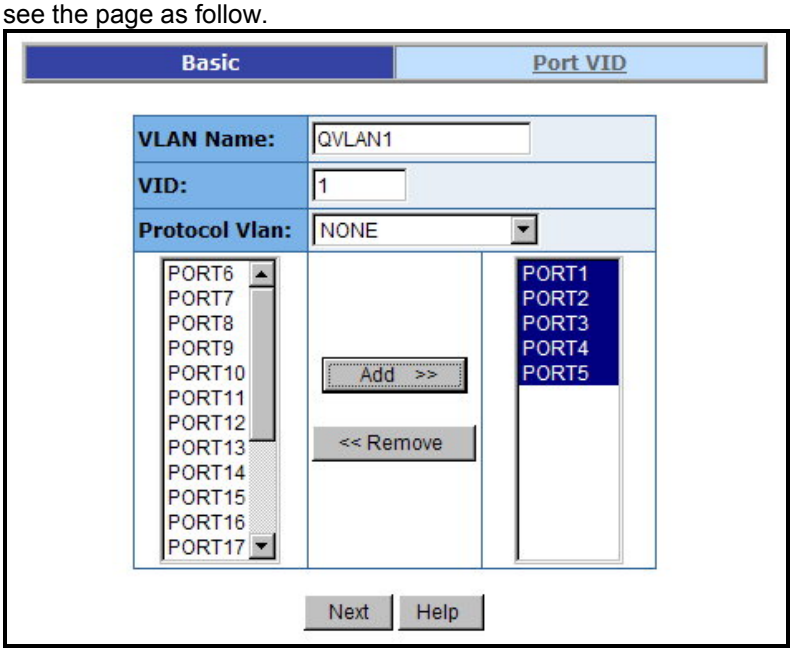


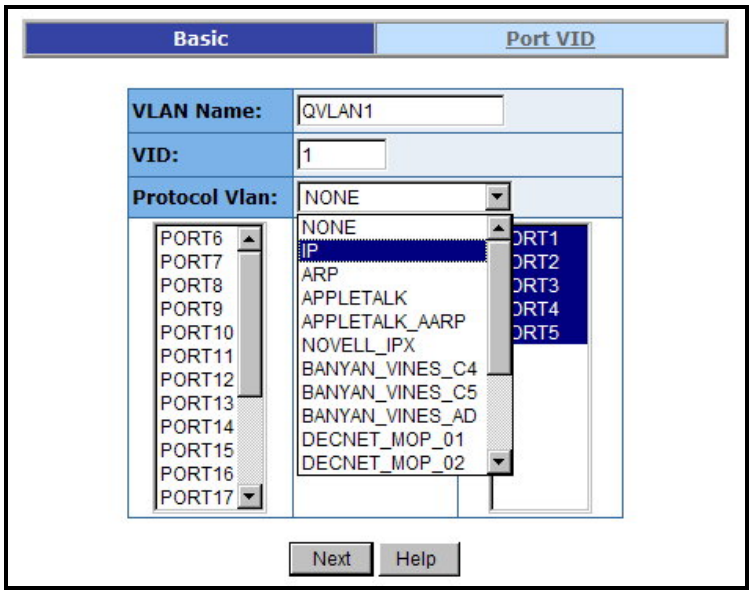
Figure 4-18 Configure 802.1Q/V VLAN

Basic

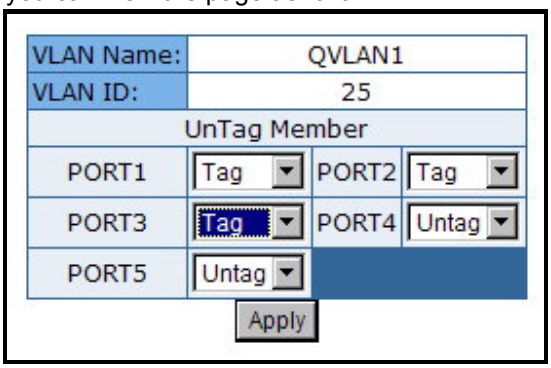
- Create a VLAN and add tagged member ports to it.
- From the main menu, click Administrator →VLAN configuration, click Add then you will see the page as follow.



- Type a name for the new VLAN.
- Type a VID (between 2 to 4094). The default is 1.
- Choose the protocol type.
  - We support **802.1v** with the implementation of Port-and-Protocol-based VLAN classification. User can combine the field "**Protocol Vlan**" and the field of the **port number** to form a new VLAN group.



- From the Available ports box, select ports to add to the switch and click "Add >>". If the trunk groups exist, you can see it in here (ex: TRK1, TRK2…), and you can configure it is the member of the VLAN or not.
- Click Next. Then you can view the page as follow：

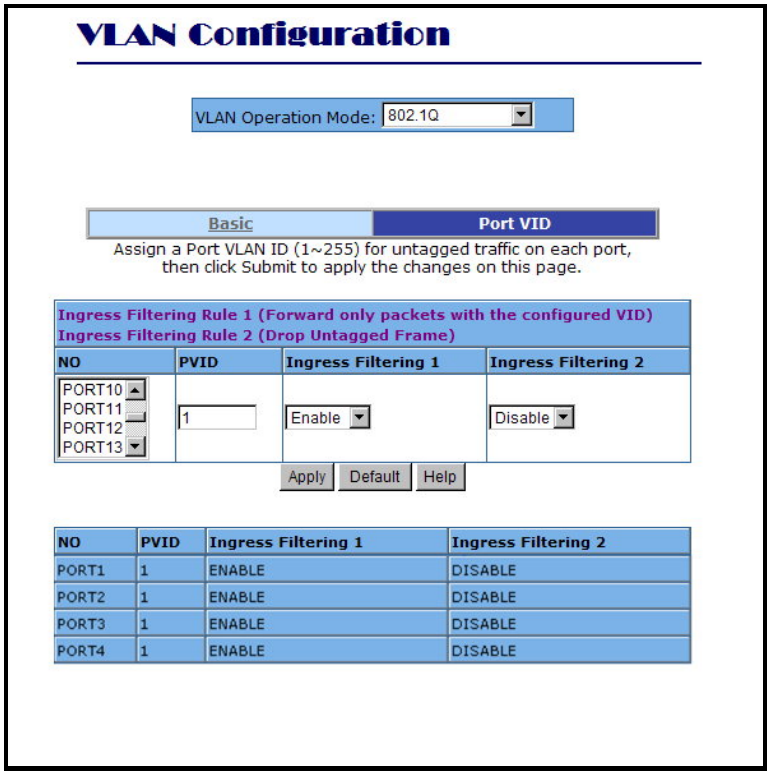


- Uses this page to set the outgoing frames are VLAN-Tagged frames or no. Then click Apply.
  Tag: outgoing frames with VLAN-Tagged.
  Untag: outgoing frames without VLAN-Tagged.

Port VID

Configure port VID settings

From the main Tag-based (IEEE 802.1Q) VLAN page, click Port VID Settings.



- **Port VID (PVID)**
  Set the port VLAN ID that will be assigned to untagged traffic on a given port. This feature is useful for accommodating devices that you want to participate in the VLAN but that don't support tagging. Each port of SNMP-FSH2602MG allows user to set one PVID, the range is 1~255, default PVID is 1. The PVID must as same as the VLAN ID that the port belong to VLAN group, or the untagged traffic will be dropped.

- **Ingress Filtering**
  Ingress filtering lets frames belonging to a specific VLAN to be forwarded if the port belongs to that VLAN. SNMP-FSH2602MG has two ingress filtering rule as follows:
  - **Ingress Filtering Rule 1:**
    A forward only packet with VID matching this port's configured VID.
  - **Ingress Filtering Rule 2:** Drop Untagged Frame.

Spanning Tree (Administrator menu)

The Spanning-Tree Protocol (STP) is a standardized method (IEEE 802.1D) for avoiding loops in switched networks. Enable STP to ensure that only one path at a time is active between any two nodes on the network.

You can enable Spanning-Tree Protocol on web management's switch setting advanced item, select enable Spanning-Tree protocol. We recommend that you enable STP on all switches ensures a single active path on the network.

On the Spanning Tree configuration page are explained as following:

- **The spanning tree information about the Root Bridge in the following screen.**

Root Bridge Information

Priority	32768
Mac Address	004063809988
Root_Path_Cost	0
Root Port	0
Max Age	20
Hello Time	2
Forward Delay	15

- **The spanning tree status about the switch is shown in the following screen.**

STP Port Status

PortNum	PathCost	Priority	PortState
PORT1	10	128	FORWARDING
PORT2	10	128	FORWARDING
PORT3	10	128	FORWARDING
PORT4	10	128	FORWARDING
PORT5	10	128	FORWARDING
PORT6	10	128	FORWARDING
PORT7	10	128	FORWARDING
PORT8	10	128	FORWARDING
PORT9	10	128	FORWARDING
PORT10	10	128	FORWARDING
PORT11	10	128	FORWARDING
PORT12	10	128	FORWARDING
PORT13	10	128	FORWARDING
PORT14	10	128	FORWARDING
PORT15	10	128	FORWARDING

Setting Spanning Tree

Configure Spanning Tree Parameters

STP State	☑
Priority (0-65535)	32768
Max Age (6-40)	20
Hello Time (1-10)	2
Forward_Delay_Time(4-30)	15

Apply

Figure 4-19 Set Spanning Tree

Please change the Parameter according to the parameter table description below:

Parameter	Description
Priority	You can change priority value, A value used to identify the root bridge. The bridge with lowest value has the highest priority and is selected as the root. Enter a number 1 through 65535.
Max Age	You can change Max Age value, The number of second bridge waits without receiving Spanning-Tree Protocol configuration messages before attempting a reconfiguration. Enter a number 6 through 40.
Hello Time	You can change Hello time value, the number of seconds among the transmission of Spanning-Tree Protocol configuration messages. Enter

	a number 1 through 10.
Forward Delay time	You can change forward delay time, The number of seconds a port waits before changing from its Spanning-Tree Protocol learning and listening states to the forwarding state. Enter a number 4 through 30.

Table 4-2 Spanning Tree Setting Parameters

- **The following parameter can be configured on each port, click set Apply button to modify**

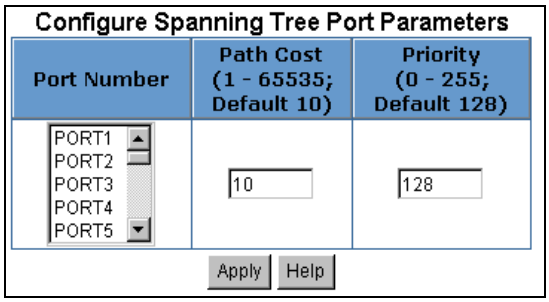
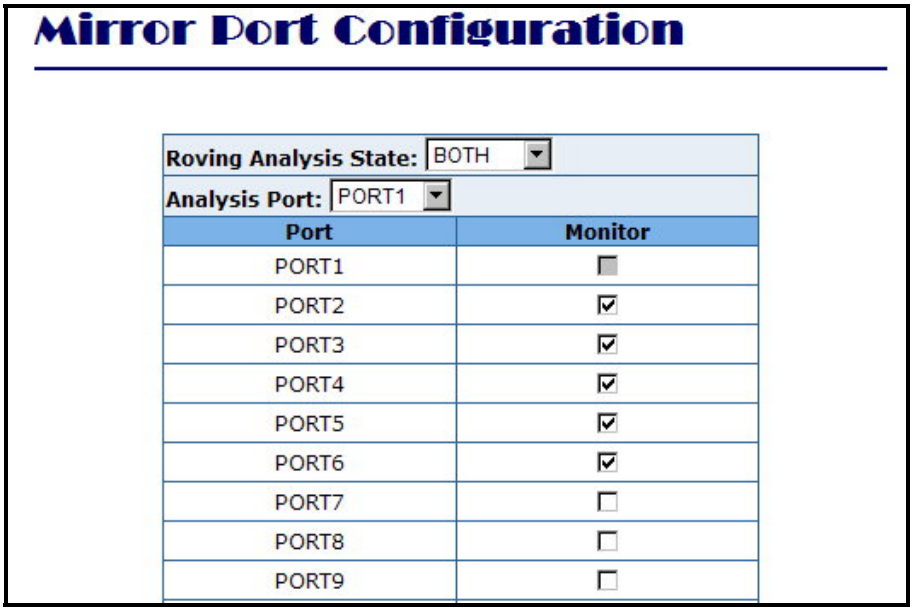


Figure 4-20 Spanning Tree Port Parameter

Parameter	Description
Port Priority	You can make it more or less likely to become the root port, the rage is 0-255,default setting is 128 the lowest number has the highest priority.
Path Cost	Specifies the path cost of the port that switch uses to determine which port are the forwarding ports the lowest number is forwarding ports, the rage is 1-65535 and default value base on IEEE802.1D 10Mb/s = 50-600 100Mb/s = 10-60 1000Mb/s = 3-10

Port Mirror (Administrator menu)

The Port Mirror is a method for monitor traffic in switched networks. Traffic through ports can be monitored by one specific port. That is, traffic goes in or out monitored ports will be duplicated into Analysis port.



Figre 4-21 Port Mirror

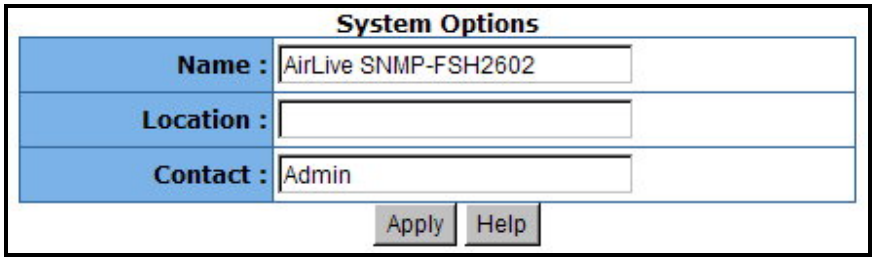
- **Roving Analysis Mode:** Press **Space** key to set sniffer mode: Disable \Rx \Tx \Both.
- **Analysis Port:** It means that this port can be used to see all monitors port traffic. You can connect analysis port to LAN analyzer or netxray.
- **Monitored Port:** The ports you want to monitor. All monitor port traffic will be copied to analysis port. You can select max 25 monitor ports in the switch. User can choose which port that they want to monitor in only one mirror mode.
- **If you want to disable the function, you must select monitor port to none.**

SNMP/Trap Manager (Administrator menu)

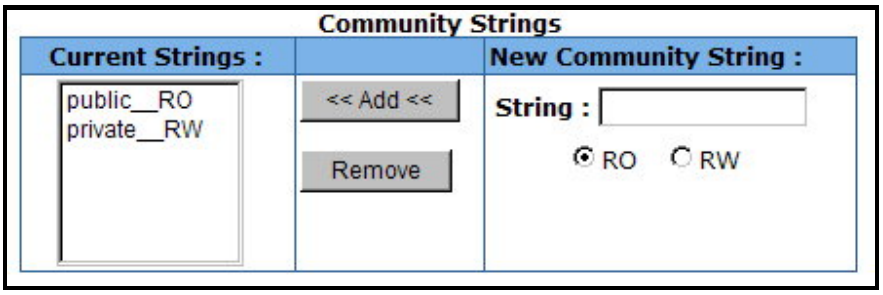
Any Network Management platform running the simple Network Management Protocol (SNMP) can manage the switch, provided the Management Information Base (MIB) is installed correctly on the management station. The SNMP is a Protocol that governs the transfer of information between management station and agent.

System Options： Use this page to define management stations as trap managers and to enter SNMP community strings. User can also define a name, location, and contact person for the switch. Fill in the system options data, and then click Apply to update the changes on this page.

Name: Enter a name to be used for the switch.
Location: Enter the location of the switch.
Contact: Enter the name of a person or organization.



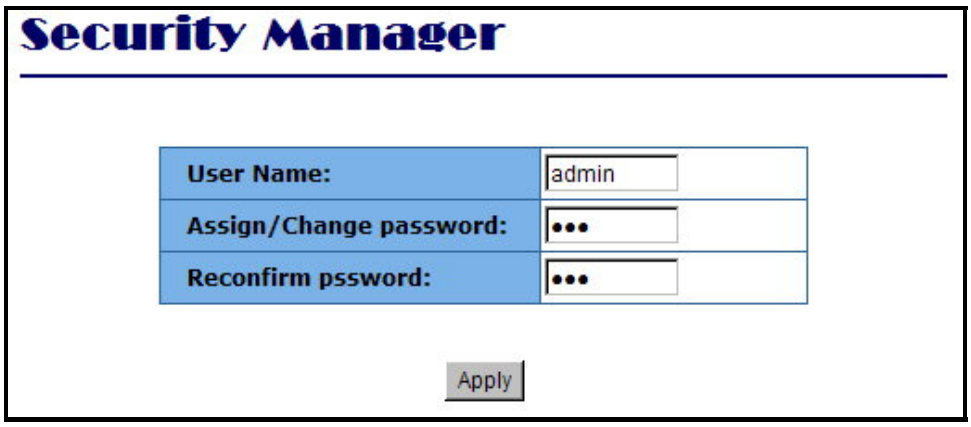
Community strings serve as passwords and can be entered as one of the following:
RO: Read only. Enables requests accompanied by this string to display MIB-object information.
RW: **Read write**. Enables requests accompanied by this string to display MIB-object information and to set MIB objects.



Trap Manager ：A trap manager is a management station that receives traps, the system alerts generated by the switch. If no trap manager is defined, no traps are issued. Create a trap manager by entering the IP address of the station and a community string.

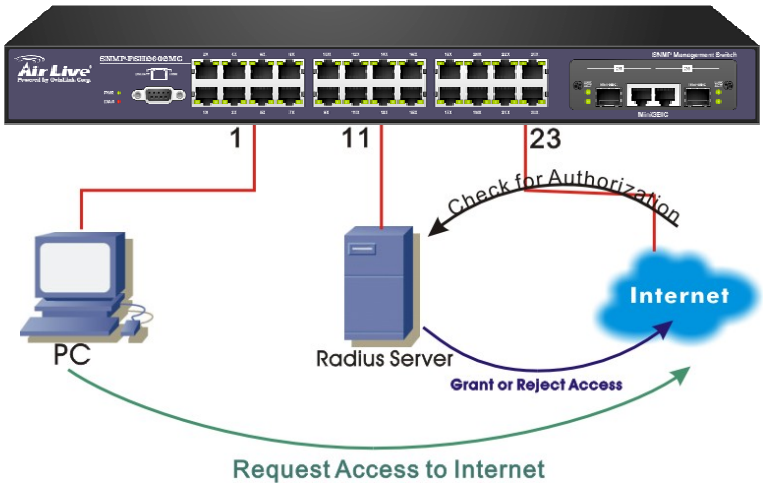
Security Manager (Administrator menu)

On this page, user can change user name and password with following steps.



- **User name:** Type the new user name.
- **Password:** Type the new password.
- **Reconfirm password:** Retype the new password.
- **Click Apply.**

Introduction to 802.1x Authentication Protocol



Function:
The 802.1x protocol allow authentication and authorization information to be embedded inside the Ethernet frame through EAP(extended authentication protocol). This allows each packet to be check for authentication without the need of opening tunnel through PPP protocol. Because of this capability, 802.1x is particular suitable for wireless and broadband service provider for authentication and accounting implementation. To setup a successful 802.1x environment, 3 elements are needed:

- **Supplicant**: The supplicant typically means a PC or mobile device that need the wireless or broadband access. For WinXP, the 802.1x protocol is already supported in the OS level. The network adapter's driver should automatically add authentication information into the Ethernet frame. On the diagram above, the PC on part 1 wants to access Internet service through the switch, it will need to get authorized by the authentication server on port 11 in order to gain access.

- **Authenticator**: The authenticator is the device between the client and the Radius server. It is typically an AP or switch. When a client needs to access certain service, the authenticator will forward the request to the authentication server and wait for the authentication server to approve or deny service to the supplicant. Once authenticated, supplicant can gain access through the authenticator.
- **Authentication Server**: The 802.1x authentication server is typically the Radius server. The Radius server will utilize a server port and an account port for authentication and accounting purpose. These allow the server to keep track of the supplicant's usage and grant access based on the accounting information. The Radius server will analyze the supplicant's authentication information and decide what level of service the supplicant is allowed. Then, it will pass this information to the authenticator for execution.

The SNMP-FSH2602MG has full 802.1x authenticator capability. Therefore, even if your Access Point is not 802.1x ready, the switch can still provide the function if the AP is connected to the switch. The switch provides both server and accounting port to the Radius server. It also allows users to define traffic for certain ports to be fully authorized or never authorized. Its implementation is far more complete than most APs or switches in the industry.

Application

Hotspot provider: Wireless ISP installs Access Point in airport, café, and many public areas. They charge customer based on the usage. 802.1x gives service provider a feasible way for authentication. With the SNMP-FSH2602MG switch, the APs do not have to support 802.1x. The authenticator function will be handled by the switch.

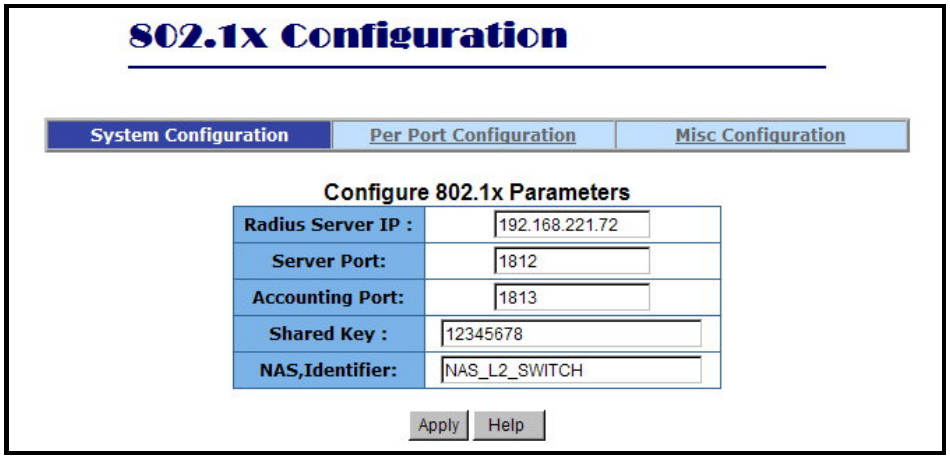
Hotel: Hotel can charge their customer base on usage of internet service through the 802.1x protocol.

802.1x Configuration (Administrator menu)

Before you can set up the 802.1x configuration, you have to enable the 802.1x control by going to "***Administrator -> Switch Settings -> Advanced***" to enable the 802.1x protocol. The option is on the bottom of the page.

System Configuration

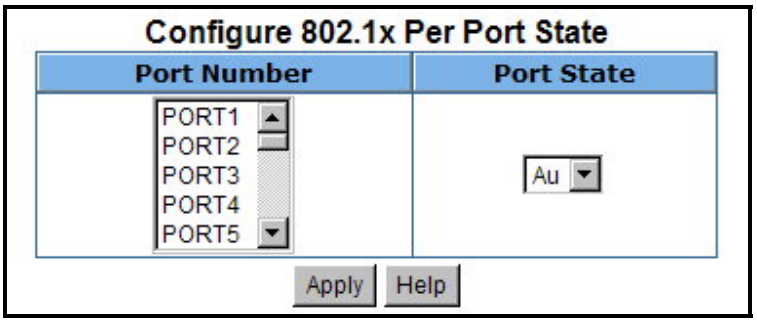
802.1x makes use of the physical access characteristics of IEEE802 LAN infrastructures in order to provide a means of authenticating and authorizing devices attached to a LAN port that has point-to-point connection characteristics, and of preventing access to that port in cases in which the authentication and authorization process fails.



- **Radius Server IP Address**: the IP address of the authentication server.
- **Server Port**: The UDP port number used by the authentication server to authenticate.
- **Accounting Port**: The UDP port number used by the authentication server to retrieve accounting information.
- **Shared Key**: A key shared between this switch and authentication server.
- **NAS, Identifier**: A string used to identify this switch.

Per Port Configuration

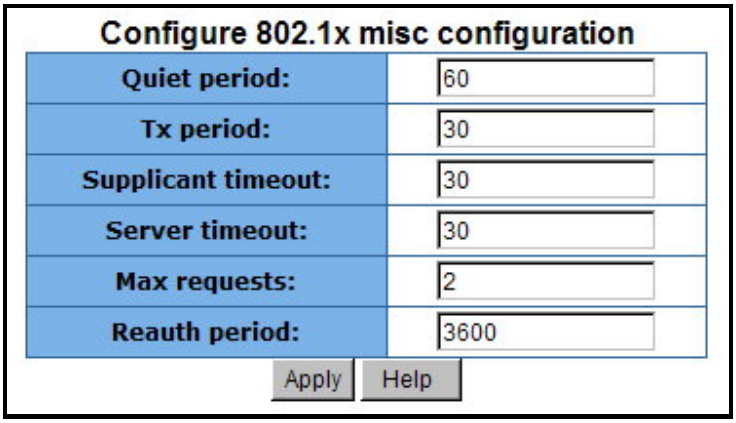
In this page, you can select the specific port and configure the Authorization State.
Each port can select four kinds of Authorization State:



Fu：Force the specific port to be unauthorized.
Fa：Force the specific port to be authorized.
Au：The state of the specific port was determined by the outcome of the authentication.
No：The specific port didn't support 802.1x function.

Misc Configuration

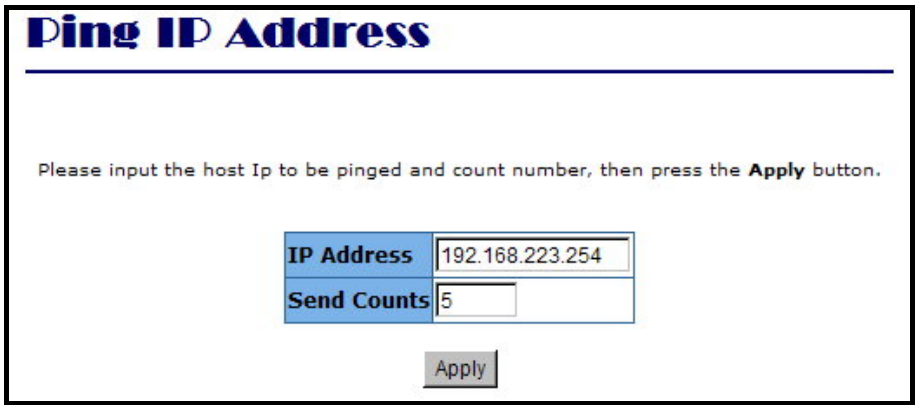
In this page, you can change the default configuration for the 802.1x standard:



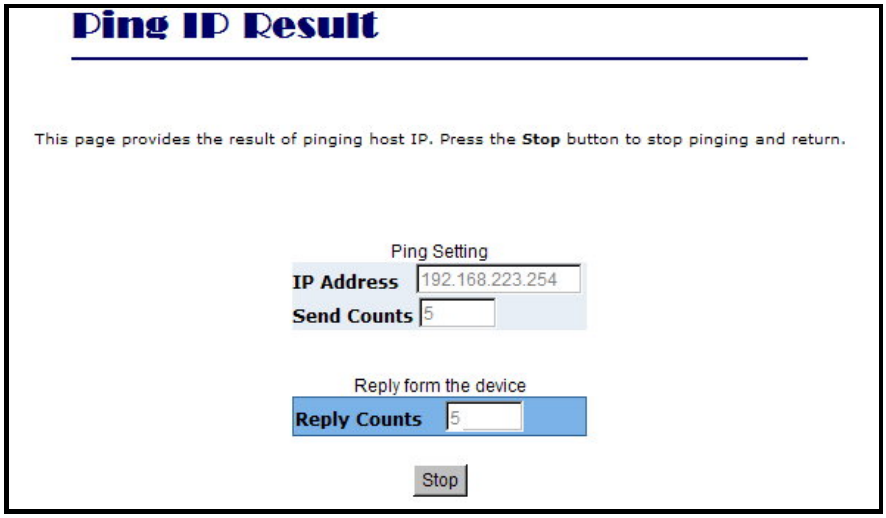
- **Quiet Period**： Used to define periods of time during which it will not attempt to acquire a supplicant (Default time is 60 seconds).
- **Tx Period**： Used to determine when an EAPOL PDU is to be transmitted (Default value is 30 seconds).
- **Supplicant Timeout**： Used to determine timeout conditions in the exchanges between the supplicant and authentication server (Default value is 30 seconds).
- **Server Timeout**： Used to determine timeout conditions in the exchanges between the authenticator and authentication server (Default value is 30 seconds).
- **ReAuthMax**：Used to determine the number of re-authentication attempts that are permitted before the specific port becomes unauthorized (Default value is 2 times).
- **Reauth Period**： Used to determine a nonzero number of seconds between periodic re-authentication of the supplications (Default value is 3600 seconds).

PING

This switch provides a simplified ping function for user to check whether an IP is on line or not.



Input the IP Address and counts of ping packet to send. Press “Apply” to continue next page



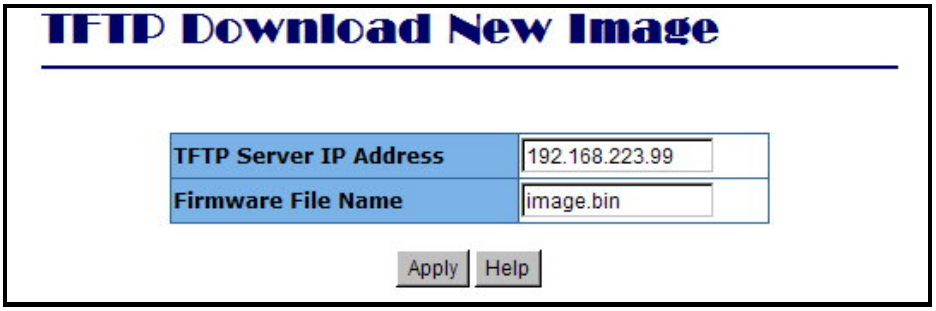
This page will display the result of the pinging IP. It continues updating the “Reply Counts” when the ping packets are sending. User can interrupt the progress by clicking “Stop” button.

If the reply counts remain zero after webpage reload stops, it could mean that the pinged host of this P does not exist.

TFTP Update Firmware

The following menu options provide some system control functions to allow a user to update firmware and remote boot switch system:

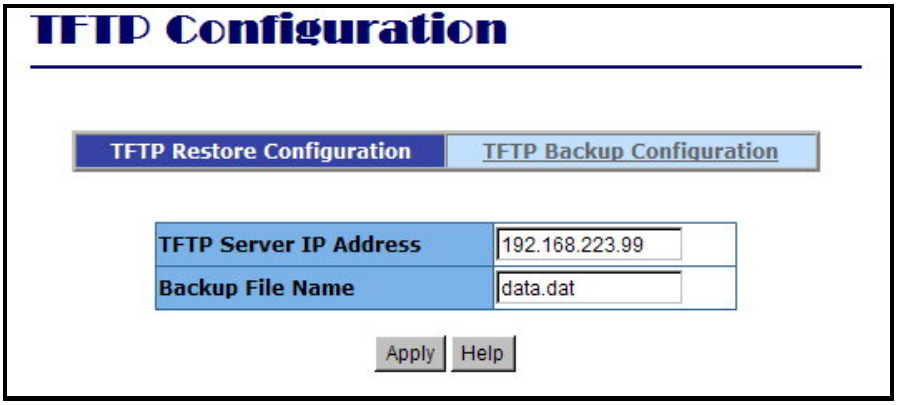
- Install TFTP program (such as Turbo98, or Cisco TFTP) on a computer connected to the switch.
- Copy updated firmware **image. bin** into TFTP server’s directory.
- Find out what is the computer’s IP address.
- In web management select administrator—TFTP update firmware.
- Enter the computer IP address into the “TFPT Server IP Address” field
- Download new **image.bin** file by pressing <update firmware>.
- After update finished, press <reboot> to restart switch.



Configuration Backup

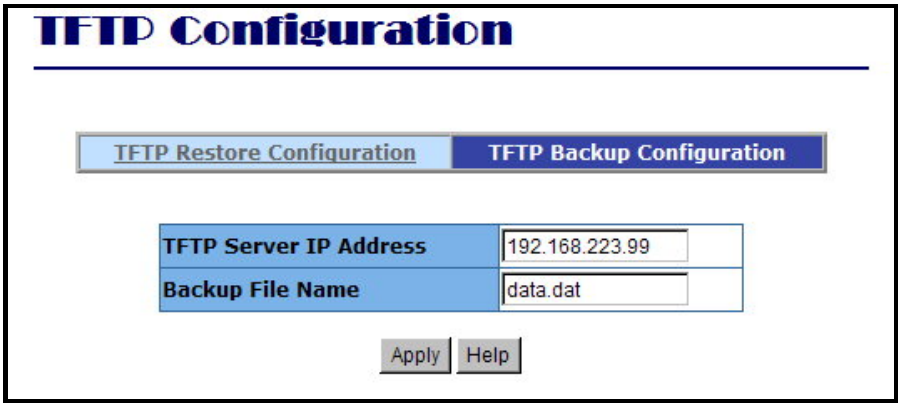
TFTP Restore Configuration

Use this page to set ftp server address. You can restore EEPROM value from here, but you must put back image in ftp server, switch will download back flash image.



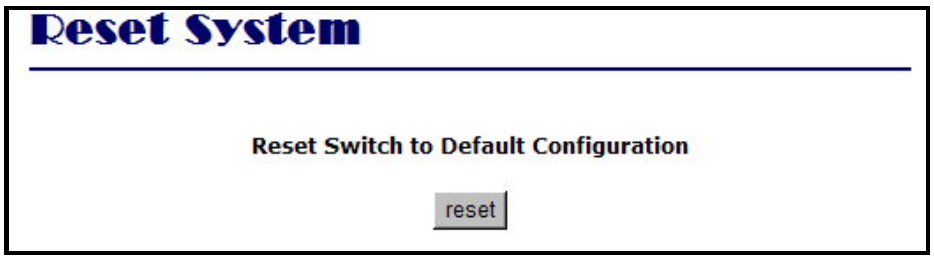
TFTP Backup Configuration

Use this page to set TFTP server IP address. You can save current EEPROM value from here, then go to the TFTP restore configuration page to restore the eeprom value.



Reset System

Reset Switch to the default configuration



Reboot

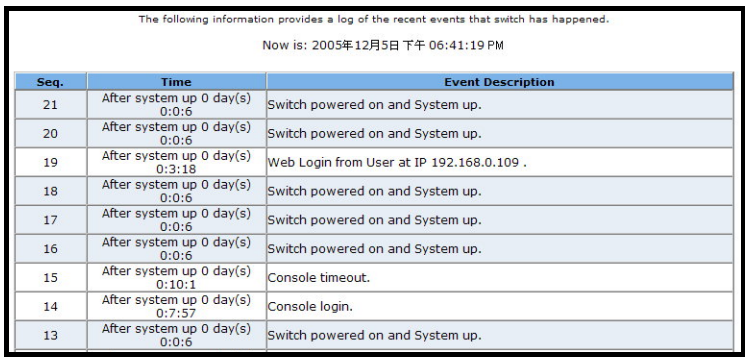
Reboot the Switch in software reset

Event Logging

A history log is provided here to give a track about events that the switch had happened. There are 100 loggings for maximum capacity of this switch. The latest event will overwrite the oldest one.
All records will be kept in flash memory even after writing default, unless user clears the event log.

Press “Prev” or “Next” button will browse previous 25 or next 25 sequences. The “Top” button will re-list the table from the latest event. “Clear” button will clear all history.

Event logger displays the real time according to the time zone where user is.


The following information provides a log of the recent events that switch has happened.
Now is: 2005年12月5日 下午 06:41:19 PM
Seq. | Time | Event Description
21 | After system up 0 day(s) 0:0:6 | Switch powered on and System up.
20 | After system up 0 day(s) 0:0:6 | Switch powered on and System up.
19 | After system up 0 day(s) 0:3:18 | Web Login from User at IP 192.168.0.109 .
18 | After system up 0 day(s) 0:0:6 | Switch powered on and System up.
17 | After system up 0 day(s) 0:0:6 | Switch powered on and System up.
16 | After system up 0 day(s) 0:0:6 | Switch powered on and System up.
15 | After system up 0 day(s) 0:10:1 | Console timeout.
14 | After system up 0 day(s) 0:7:57 | Console login.
13 | After system up 0 day(s) 0:0:6 | Switch powered on and System up.

5 Terminal Management

The SNMP-FSH2602MG supports terminal management through Telnet or Console Port. Console Port management allows out-of-band management and serves as a backup when Web/Telnet management fails. For station that does not have Internet Explorer, users can use Telnet for in-band management. You will also learn how to manage the switch remotely through Internet on telnet.

In-Band and Out-of-Band Management

In-Band and Out-of-Band managements are the two distinct methods for switch management.

In-Band management that includes Web, Telnet, and SNMP allows users to configure the switch through the Ethernet network. By connecting the switch through a router or directly to Internet, user can even manage the switch remotely.

Out-of-Band management means managing the switch outside of the switch's Ethernet network. Console Port management is the most common type of out-of-band management. Out-of-Band management requires the switch to be physically attached to a computer through a RS-232, USB, or Parallel port. It has the distinct security advantage and it can serve as a backup when In-Band management function fails.

Configure for Telnet management

The Concept of Subnet

Under the TCP/IP environment, network devices must be on the same subnet in order to see each other. This means before you can configure the switch through telnet, your must set your computer to the same subnet as the switch. For two network devices to be on the same subnet, they must have the following 2 criteria
:

- **Their IP address must be on the same subnet**. For example, if one IP address is 192.168.0.1. The other's IP address must be 192.168.0.x (x is any number between 2 and 254) for Class C subnet. To find out the IP address information for your computer. Under WinNT/2000/XP, please open Command Line window and type "ipconfig". Under Win9x, please run "winipcfg".
- **They must have the same subnet mask.** For example, if one machine is 255.255.255.0. The other machine must also set to the same 255.255.255.0 mask.

Configure your computer's IP

Before accessing the switch through telnet, please follow the instruction below to configure

your computer's IP to the same subnet as the switch. If your switch's IP has not been changed, it should have the following factory default value:

The switch's Default IP

IP Address:	192.168.223.100
Subnet Mask:	255.255.248.0
Gateway:	192.168.223.254

Now if your computer's IP is not in the same subnet as the switch, please follow the steps below to change the computer's IP:

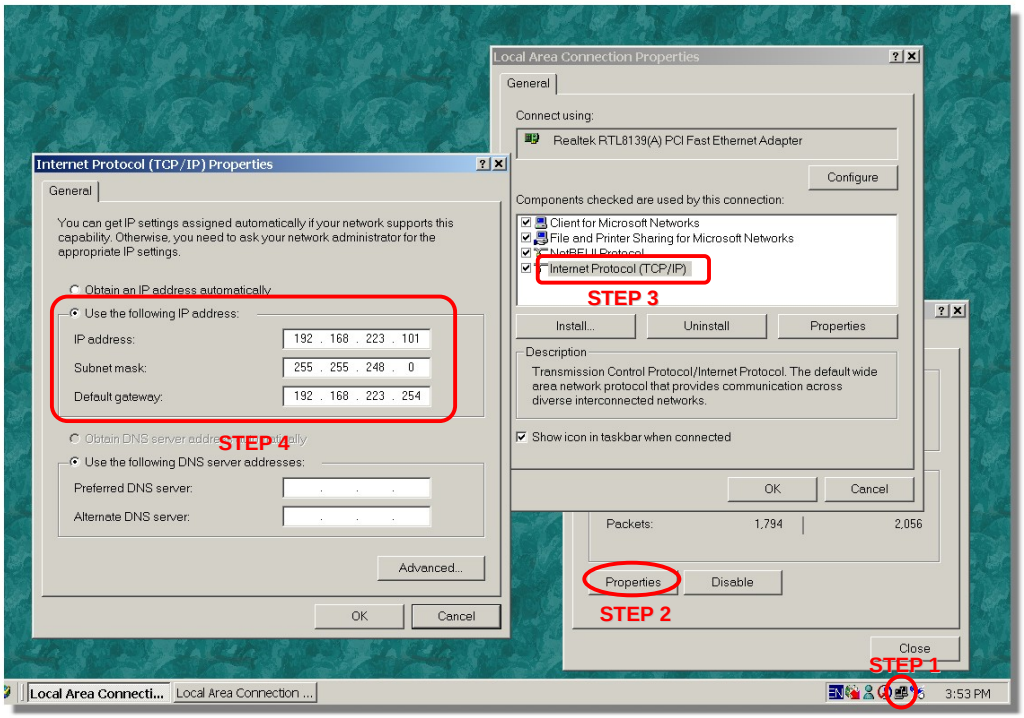

Local Area Connection Properties
General
Connect using:
Realtek RTL8139(A) PCI Fast Ethernet Adapter
Configure
Components checked are used by this connection:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
Internet Protocol (TCP/IP)
STEP 3
Install...
Uninstall
Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in taskbar when connected
OK
Cancel
Packets: 1,794 2,056
Properties
Disable
STEP 2
Close
STEP 1
Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 223 . 101
Subnet mask: 255 . 255 . 248 . 0
Default gateway: 192 . 168 . 223 . 254
STEP 4
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel
Local Area Connecti...
Local Area Connection ...
3:53 PM

Figure 5-1 Manual IP setting

Step 1:
Double click on the network connection status icon on the task bar. This should bring up a window showing the status of the current network connection. If there is no network status icon on the task bar, please go to the "Start -> Settings -> Network -> Local Connection" of the task bar's Start menu.

Step 2:
Click on the "property" icon.

Step 3:
Double click on the "Internet Protocol (TCP/IP)

Step 4:
Click on "Use the following IP address" button and enter the computer's address manually. This IP address must be on the same subnet as the switch but different from the switch's IP. Please make sure the IP is not used by other network device. If the switch's IP address is

of factory's default value. We recommend enter the following for computer's IP:

IP Address: 192.168.223.101
Subnet Mask: 255.255.248.0
Gateway: 192.168.223.254

Click "Okay" after finish entering the IP.

***Note:** an alternative method is to change the switch's IP to the same subnet as the computer. Please use console-port management to change switch's IP.*

***Note2:** If IP address of the switch is lost, please use console port management to find the switch's IP address.*

***Note3:** The SNMP-FSH2602MG has DHCP client ability. This allows DHCP server (or router) to assign IP automatically. However, we do not recommend turning on the DHCP client because the DHCP server assign the IP randomly. The DHCP client should be used only when connecting directly to Cable Modem (for remote management) whose service provider uses DHCP for IP assignment.*

Now, you will be able to access the switch by typing in the switch's IP address through telnet.

Remote Management

In this section, you will learn how to setup your computer and the router for remote telnet management. Remote management allows MIS to manage a switch from outside of the switch's IP domain or from Internet. Depending on the type of Internet connection you have, there are two ways to setup the switch to be available through Internet.

Direct Connection to Internet

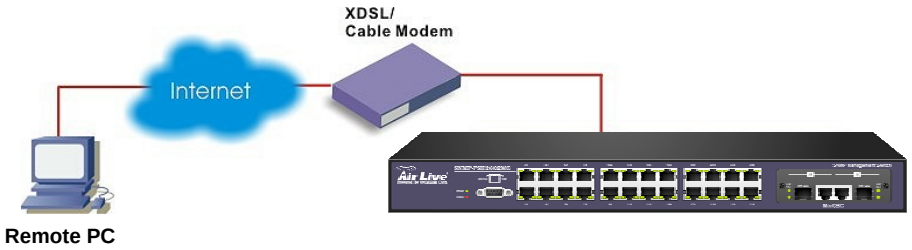


Figure 5-2 Remote Management through direct Internet

If you have a fixed IP xDSL account or cable modem account, and there is no router in the network, you can connect your switch directly to Internet via xDSL modem/Cable Modem. However, this method is not recommended as the LAN will be directly exposed to the Internet.

Fixed IP: If your ISP has assigned you a fixed IP. Please go to the Switch's IP configuration and enter the IP address, Subnet Mask, and Gateway information offered by your ISP. If your ADSL connection is PPPoE or PPTP type, you have to connect through a router for remote management.

Cable Modem: If your Cable service provider uses DHCP for IP assignment, please turn on the DHCP function under IP configuration. Make sure there is no DHCP server in the

network. Then the Cable provider will assign the switch with a IP and Gateway. Go to the console port management to find out what IP has been assigned to the switch.

When the configuration is finished, the Remote PC can access the switch by typing the switch's IP address on the Telnet.

Connect through Broadband Router

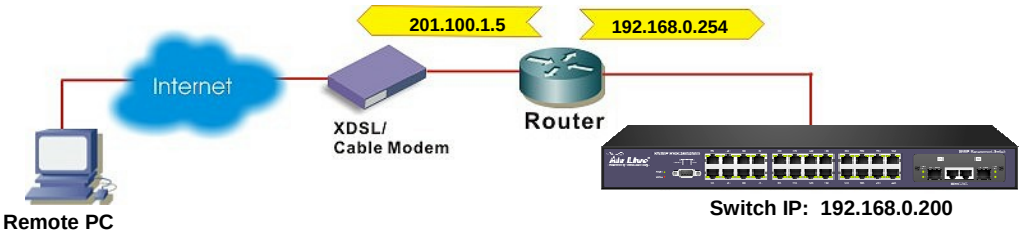


Figure 5-3 Remote Management through Broadband Router

If you have an IP sharing router in the network, you can open a virtual server on the router to allow the switch to be managed through Internet. This method is more recommended as the broadband router provides natural fire wall protector from hackers.

In the diagram above, the router has the WAN (given by the ISP) port IP address "201.100.1.5" and LAN port address "192.168.0.254". The switch's IP is "192.168.0.200". Please follow the instruction below to setup the router and switch for remote access:

On the Switch
- ❑ On the IP setting, set the gateway to Router's LAN port address 192.168.0.254
- ❑ Please make sure the subnet mask is the same as the router's.

On the Router
- ❑ Go to router's Virtual Server setting and open the Telnet port (TCP Port 80) to the switch's IP address 192.168.0.200
- ❑ If your router require enter the beginning and ending Port (from PortX to PortX), enter 80 for both.

Now the Remote PC will be able to access your switch by telneting to "201.100.1.5".

Telnet to the switch

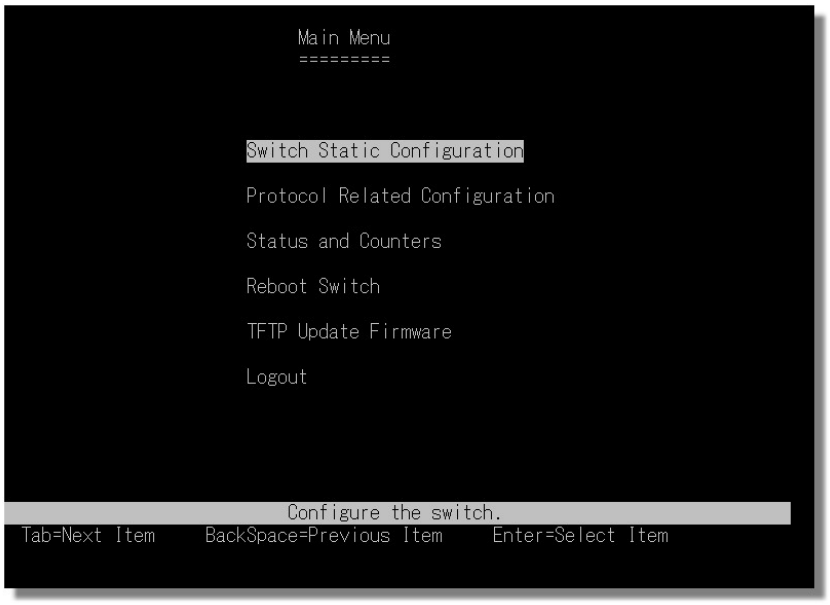
After you have properly configured the computer and switch's IP, you can get into the telnet management by the following steps:

Step 1: Open your telnet program

Step 2: type "o <switch's IP address> and press enter

Step 3: When prompt for User's name and Password, enter the following information:
- ■ User's Name: **admin**
- ■ Password: **123**

You should see the following welcome screen after the process is completed:



Console Port Management

SNMP-FSH2602MG offers you a secure way to configure your Switch through a RS-232 cable that connects its console port and the host PC. Using Windows HyperTerminal (on Windows 95/98/NT/2000/XP) or utilities such as Telix or Procomm (on DOS environment), you can easily configure the Switch f. But before you can actually configure the smart management functions by your host PC, you should establish a proper RS-232 cable connection between the console port of your switch and the COM port of your host PC.

Making RS-232 Cable Connection to the Host PC

The way to make a RS-232 cable connection is simple. Just prepare a proper RS-232 cable and, with it, connect the console port of your **SNMP-FSH2602MG** and the COM port (either COM1or COM2) of your host PC.

Fig. 5-4 RS-232 Cable

Fig. 5-5 Console Port

Fig. 6-3 RS-232 Cable

Note:
After you have established a RS-232 cable connection between SNMP-FSH2602MG and your host PC, if your SNMP-FSH2602MG or the host PC is not powered on, you should power them up before you can configure smart console functions.

Using Windows HyperTerminal

After you have properly established a RS-232 cable connection between the console port of **SNMP-FSH2602MG** and the host PC. You can now begin configuring station ports for the smart console functions. Generally, you can use Windows *HyperTerminal* (on Windows 95/98/2000) or utilities such as Telix or Procomm (on DOS environment) to access the Switch and perform smart configuration. In the following section, we will offer you a configuration example using Windows HyperTerminal on Windows 95/98/2000 platform.

Run Windows *HyperTerminal* utility

Step 1:
After the RS-232 connection is properly made, you should then run Windows HyperTerminal by accessing ***Start menu/Accessory/Communication/HyperTerminal***.

Step 2:
The HyperTerminal window appears with a dialog box to prompt you to enter a name and choose an icon for the connection.

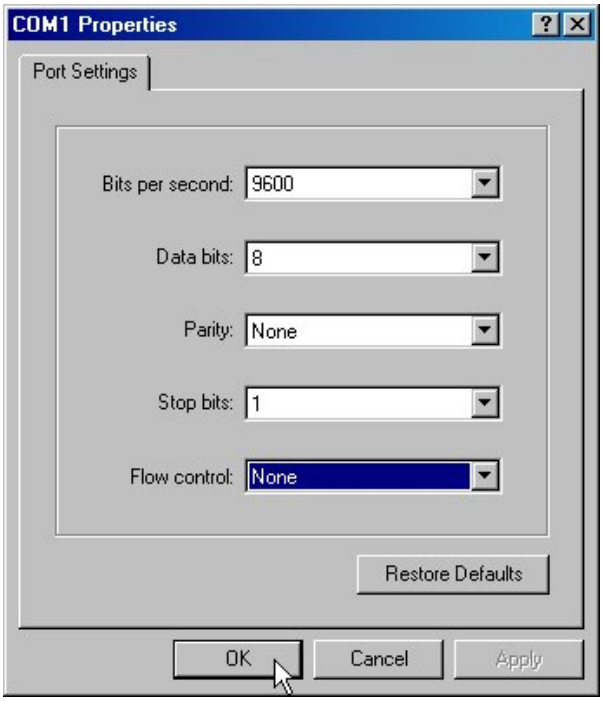
Step 3:
Ether any name you would like to have for this connection (in this example, we use **SNMP-FSH2602MG** as name for the connection) and choose an icon. Click OK.

Step 4:
The ***Connect to*** dialog box appear. Since the HyperTerminal connection is made through console port instead of a phone line, you need only to configure the Connect using: drop-down combo box (that means the settings of the rest of the combo box or list boxes can simply be ignored).

Choose the COM port that your RS-232 is connected to (in this case, it is **COM1**).

After you select the COM port, click ***OK***.

Step 5:
The COM port properties dialog box (in this case, ***COM1 Properties*** dialog box) appears.

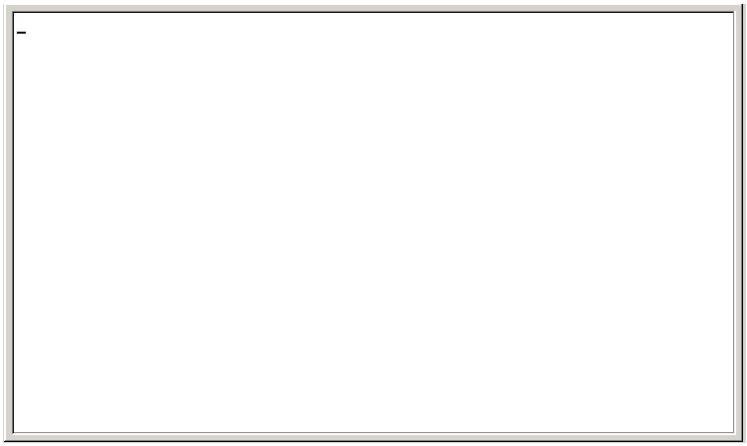


Configure the various port settings such as followings:

Bits per second: 57600
Data bits: 8
Parity: None
Stop bits: 1
Flow Control: None

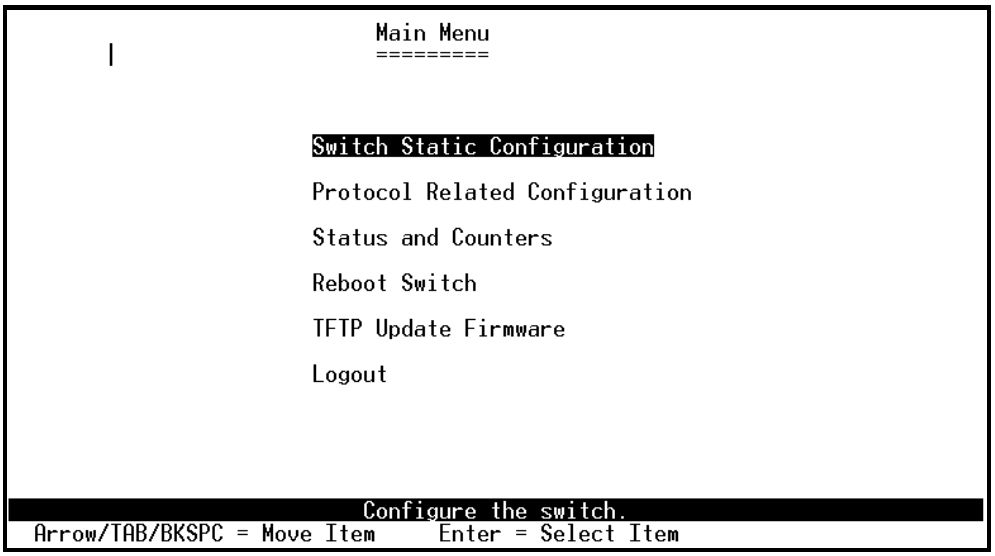
Click ***OK***.

Step 6:
Press <Enter> when the blank screen appears



Step 7:

When prompted for User's name and password. Enter "**admin**" as username and "**123**" as password. After the host PC has successfully connected to **SNMP-FSH2602MG**, you will see the *Switch Setup Main Menu* appears.



Main Menu

Once getting into the terminal management main screen, the Telnet and Console Port management will share the same configuration method. There are six items on the main screen of the terminal management.

- **Switch Static Configuration**: Configure the switch.
- **Protocol Related Configuration**: Configure the protocol function.
- **Status and Counters**: Show the status of the switch.
- **Reboot Switch**: Restart the system or reset switch to default configuration.
- **TFTP Update Firmware**: Use TFTP to download image.
- **Logou**t: Exit the menu line program.

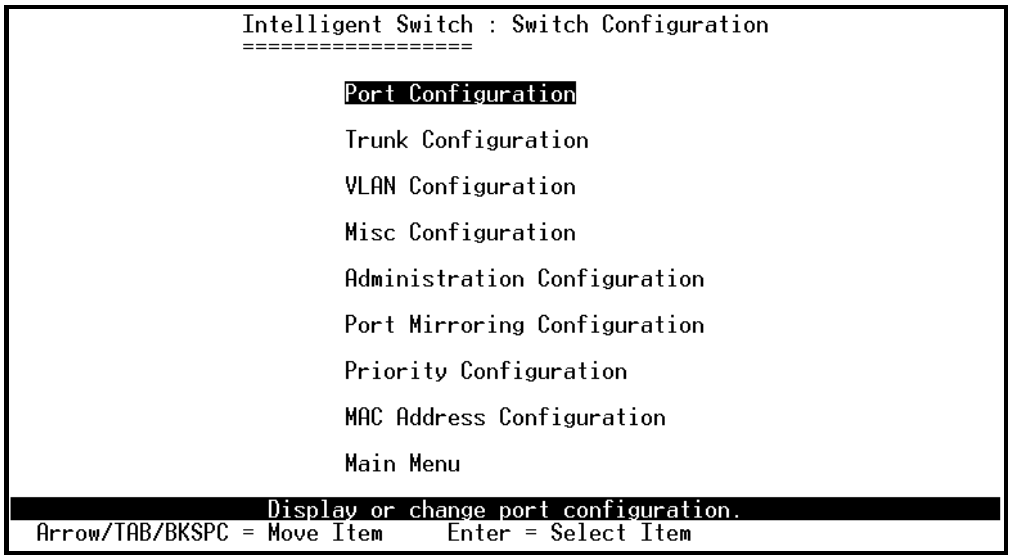
Hot Keys

There are numerous hotkey sequences listed near the bottom of each menu.
These hotkeys can help you quickly access the various configuration functions of your switch.

Functions:

. TAB Move cursor to the next item
. BACKSPACE Move cursor to the prior item
. ENTER Toggle selected item to next configuration

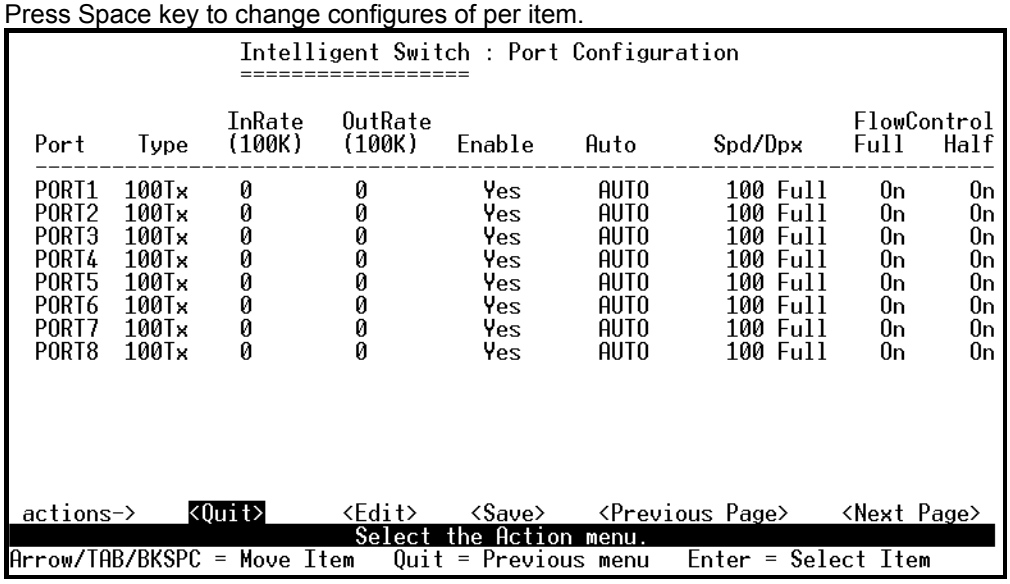
Switch Configuration



- <Control Key>
- You can press the key of Tab or Backspace to choose item, and press Enter key to select item
- The action menu line as follow provided in later configure page.
- Actions->
- <Quit>: Exit the page of port configuration and return to previous menu.
- <Edit>: Configure all items. Finished configure press
- Ctrl+A: Back to action menu line.
- <Save>: Save all configure value.
- <Previous Page>: Return to previous page to configure.
- <Next page>: Go to the next page to configure it.

Port Configuration

This page can change every port status.
Press Space key to change configures of per item.

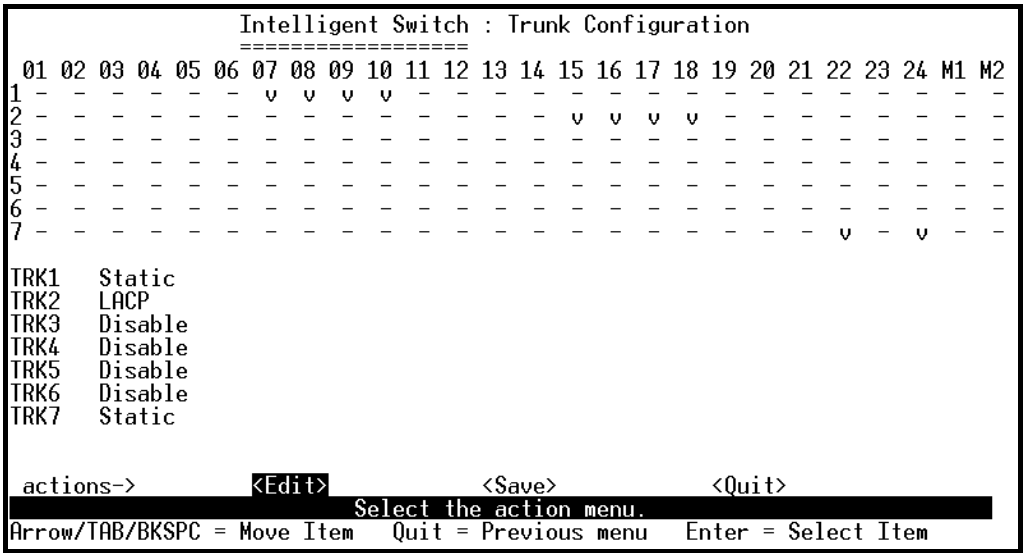

Intelligent Switch : Port Configuration
Port Type InRate (100K) OutRate (100K) Enable Auto Spd/Dpx FlowControl Full Half
PORT1 100Tx 0 0 Yes AUTO 100 Full On On
PORT2 100Tx 0 0 Yes AUTO 100 Full On On
PORT3 100Tx 0 0 Yes AUTO 100 Full On On
PORT4 100Tx 0 0 Yes AUTO 100 Full On On
PORT5 100Tx 0 0 Yes AUTO 100 Full On On
PORT6 100Tx 0 0 Yes AUTO 100 Full On On
PORT7 100Tx 0 0 Yes AUTO 100 Full On On
PORT8 100Tx 0 0 Yes AUTO 100 Full On On
actions-> <Quit> <Edit> <Save> <Previous Page> <Next Page>
Select the Action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

- **InRate** (100K/unit):
  User can set input rate control, per unit is 100K. The valid range is 0~1000.
  0: disable rate control.
  1~1000: valid rate value.
- **OutRate** (100K/unit):
  User can set output rate control, per unit is 100K. The valid range is 0~1000.
  0: disable rate control.
  1~1000: valid rate value.
- **Enabled**:
  User can disable or enable this port control.
  “Yes” that mean the port is enable.
  “No” that mean the port is disable.
- **Auto**:
  User can set auto negotiation mode is “Auto”, “Nway_Force”, “Force” of per port.
- **Spd/Dpx**:
  - User can set “100Mbps” or “10Mbps” speed on port 1~port 24,
  - set “1000Mbps”, “100Mbps” or “10Mbps” speed on port25~port26 (depend on module card mode), and set “full-duplex” or “half-duplex” mode.
- **Flow Contro**l:
  - Full: User can set full flow control function (pause) as enable or disable.
  - Half: User can set half flow control function (backpressure) as enable or disable.

NOTE:
Pressing <Save> only can save one page configuration.
If the static trunk groups exist, you can see it (ex: TRK1, TRK2…) after port 26, and you can configure all of the items as above.

Trunk Configuration

This page can create max seven trunk groups. User can arbitrarily select up to four ports from port 1~port 26 to build a trunking group.

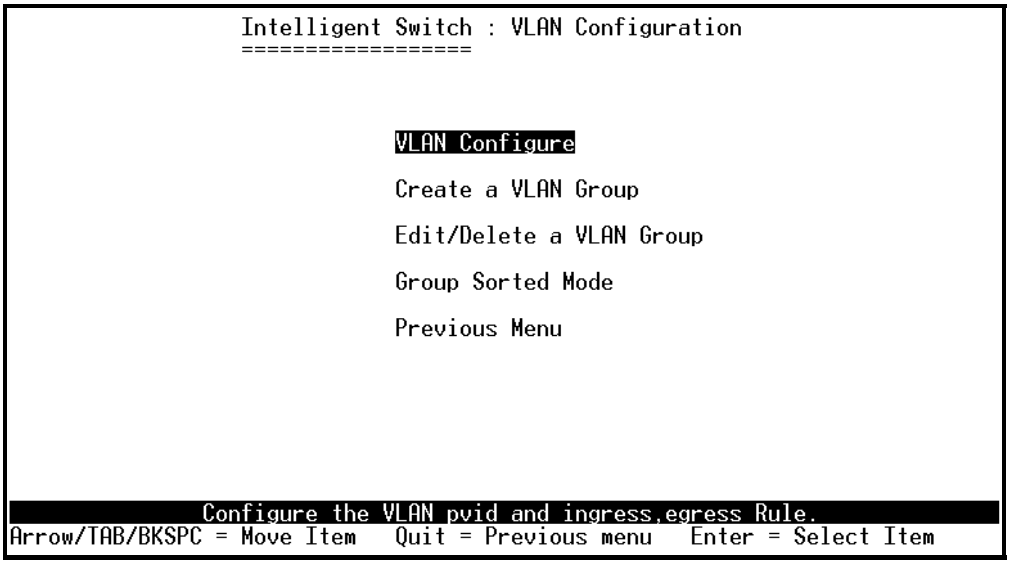

Intelligent Switch : Trunk Configuration
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 M1 M2
1 - - - - - - v v v v - - - - - - - - - - - - - - - -
2 - - - - - - - - - - - - - - v v v v - - - - - - - -
3 -
4 -
5 -
6 -
7 - v - v - -
TRK1 Static
TRK2 LACP
TRK3 Disable
TRK4 Disable
TRK5 Disable
TRK6 Disable
TRK7 Static
actions-> <Edit> <Save> <Quit>
Select the action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

Actions->

- Select <Edit> on actions menu
- Press space key to configure the member port of trunk group. Besides, you have to set "Static" or "LACP" for the corresponding trunk group of TRK1~TRK7 item.
- "Static" – the normal trunk.
- "LACP" – this trunk group have link aggregation control protocol.
- Press Ctrl+A to go back action menu line
- Select <Save> to save all configure value.
- If the item of TRK1~TRK7 is set "Disable", it's mean the trunk group is deleted.
- All ports in the same static trunk group will be treated as single port. So when you setting VLAN members and Port configuration they will be toggled on or off simultaneously.

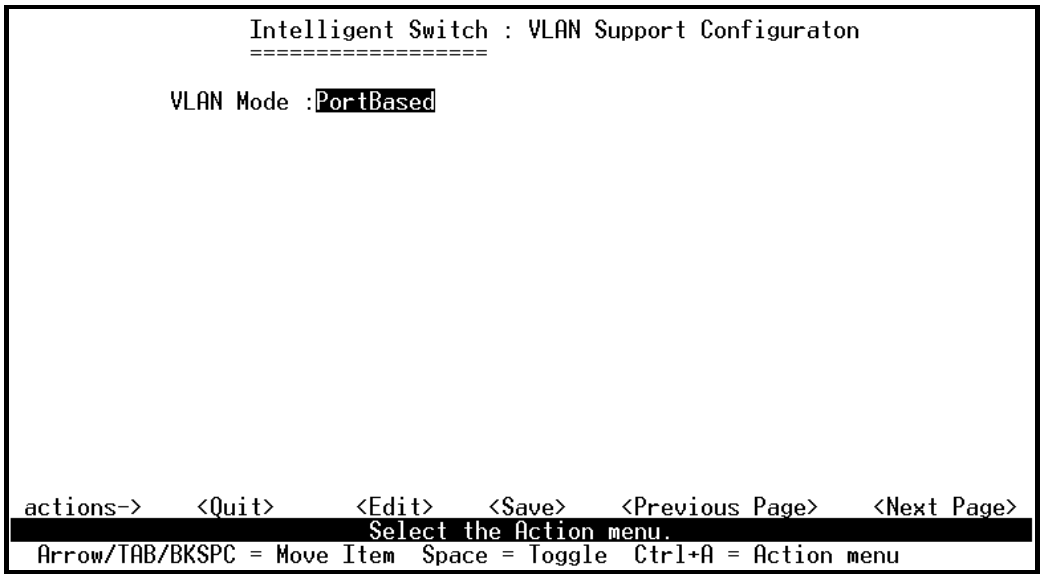
NOTE: If VLAN group exist, all of the members of static trunk group must be in same VLAN group.

VLAN Configuration


Intelligent Switch : VLAN Configuration
VLAN Configure
Create a VLAN Group
Edit/Delete a VLAN Group
Group Sorted Mode
Previous Menu
Configure the VLAN pvid and ingress,egress Rule.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

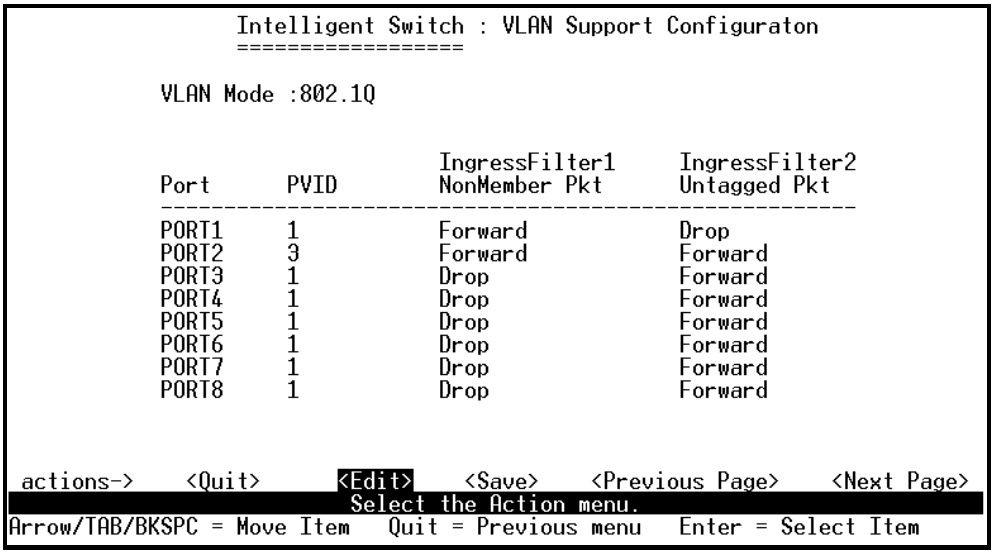
VLAN Configure

This page can set VLAN mode to port-based VLAN or 802.1Q VLAN or disable VLAN function.


Intelligent Switch : VLAN Support Configuraton
VLAN Mode :PortBased
actions-> <Quit> <Edit> <Save> <Previous Page> <Next Page>
Select the Action menu.
Arrow/TAB/BKSPC = Move Item Space = Toggle Ctrl+A = Action menu

NOTE: Change the VLAN mode for every time, user have to restart the switch for valid value.

If set **802.1Q VLAN**, you can set PVID, ingress filtering 1 and ingress filtering 2 in this page too.


Intelligent Switch : VLAN Support Configuraton
VLAN Mode :802.1Q
Port PVID IngressFilter1 NonMember Pkt IngressFilter2 Untagged Pkt
PORT1 1 Forward Drop
PORT2 3 Forward Forward
PORT3 1 Drop Forward
PORT4 1 Drop Forward
PORT5 1 Drop Forward
PORT6 1 Drop Forward
PORT7 1 Drop Forward
PORT8 1 Drop Forward
actions-> <Quit> <Edit> <Save> <Previous Page> <Next Page>
Select the Action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

Actions->

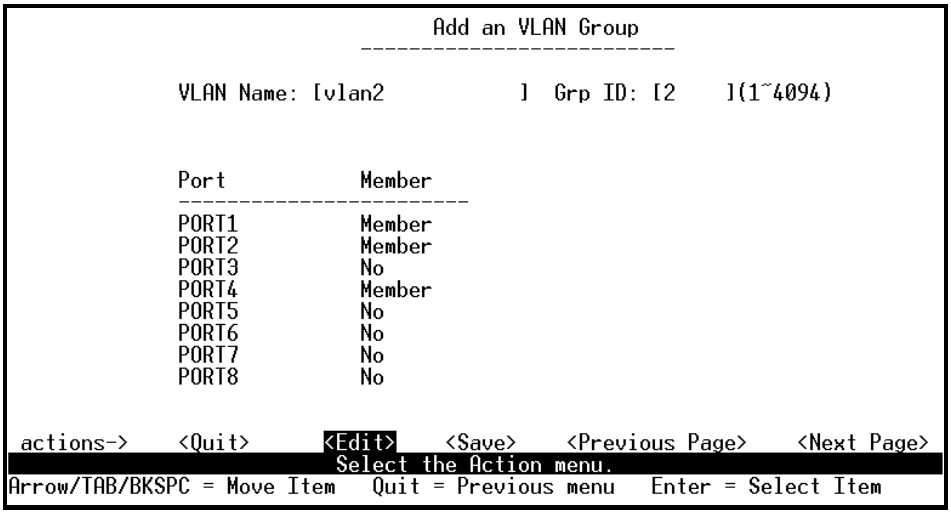
- PVID (Port VID: 1~255): Type the PVID.
- NonMember Drop:
- It matches that Ingress Filtering Rule 1 on web.
- Forwarding only packets with VID matching this port's configured VID.
- Press Space key to choose "forward" or "drop" the frame that VID not matching this port's configured VID.
- UnTagged Drop:
- It matches that Ingress Filtering Rule 2 on web.
- Drop untagged frame.
- Press Space key to choose "drop" or "forward" the untagged frame.

Create a VLAN Group

Create Port-Based VLAN

Create a port-based VLAN and add member/nonmember ports to it.

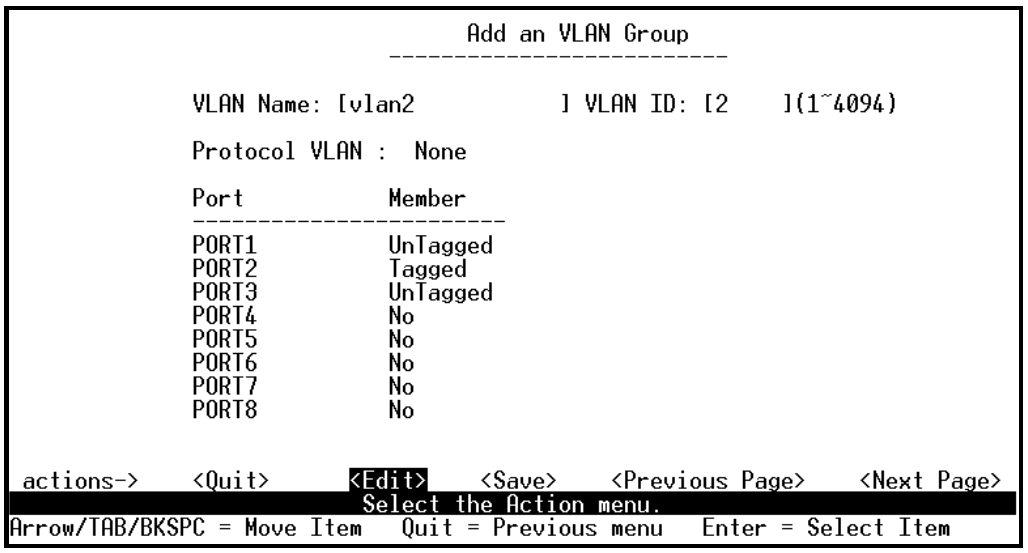
- Select <Edit>.
- VLAN Name: Type a name for the new VLAN.
- Grp ID: Type the VLAN group ID. The group ID rang is 1~4094.
- Member: Press <Space> key to choose VLAN member. There are two types to selected:
- Member：the port is member port.
- No：the port is NOT member port.
- Press Ctrl+A go back action menu line.
- Select <Save> to save all configure value.



NOTE: If the trunk groups exist, you can see it (ex: TRK1, TRK2…) after port26, and you can configure it is the member of the VLAN or not.

Create 802.1Q VLAN

- Create an 802.1Q VLAN and add tagged /untagged member ports to it.
- Select <Edit>.
- VLAN Name: Type a name for the new VLAN.
- VLAN ID: Type a VID (between 1~4094). The default is 1. There are 256 VLAN groups to provided configure.
- Protocol VLAN: Press Space key to choose protocols type.
- Member: Press Space key to choose VLAN member. There are three types to selected:
- UnTagged：This port is the member port of this VLAN group and outgoing frames are NO VLAN-Tagged frames.
- Tagged：This port is the member port of this VLAN group and outgoing frames are VLAN-Tagged frames.
- NO：The port is NOT member of this VLAN group.
- Press Ctrl+A go back action menu line.
- Select <Save> to save all configure value.

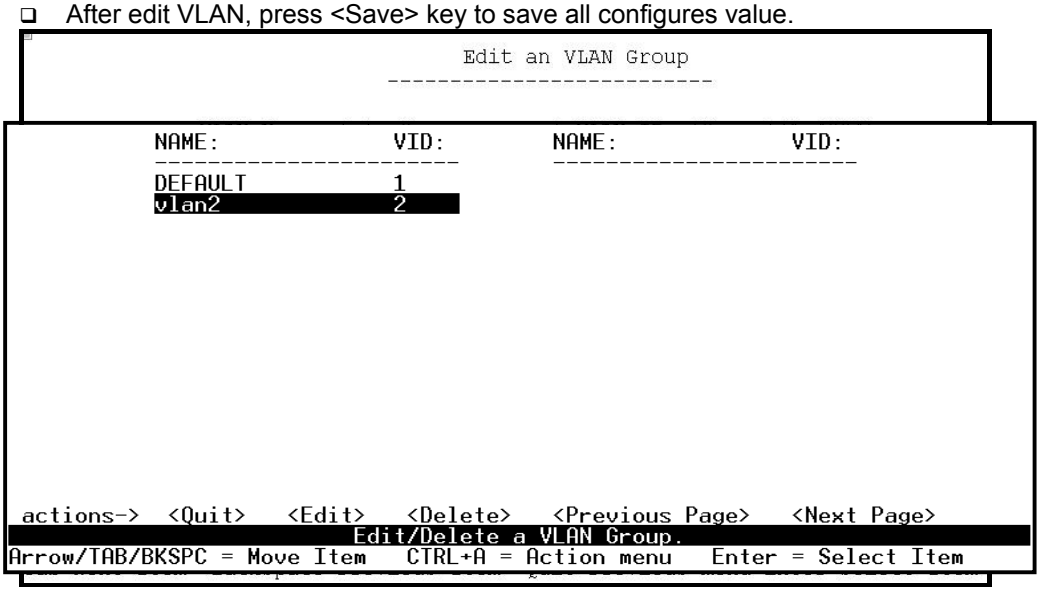


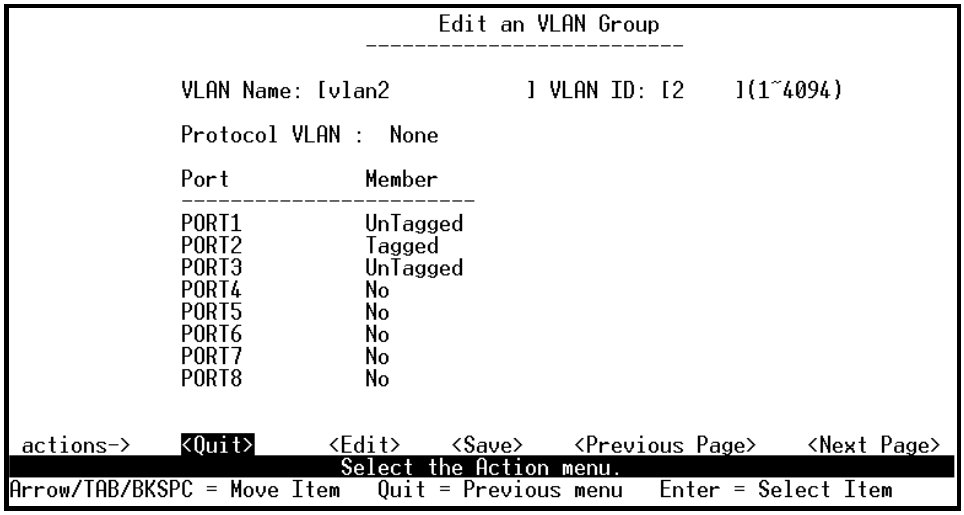
NOTE: If the trunk groups exist, you can see it (ex: TRK1, TRK2…) after port 26, and you can configure it is the member of the VLAN or not.

Edit / Delete a VLAN Group

In this page, user can edit or delete a VLAN group.

- Press <Edit> or <Delete> item.
- Choose the VLAN group that you want to edit or delete and then press enter.
- User can modify the protocol VLAN item and the member ports are tagged or un-tagged and remove some member ports from this VLAN group.
- After edit VLAN, press <Save> key to save all configures value.





NOTE：

When pressing <Enter> once will complete deletion on delete mode. the VLAN Name and VLAN ID cannot be modified.

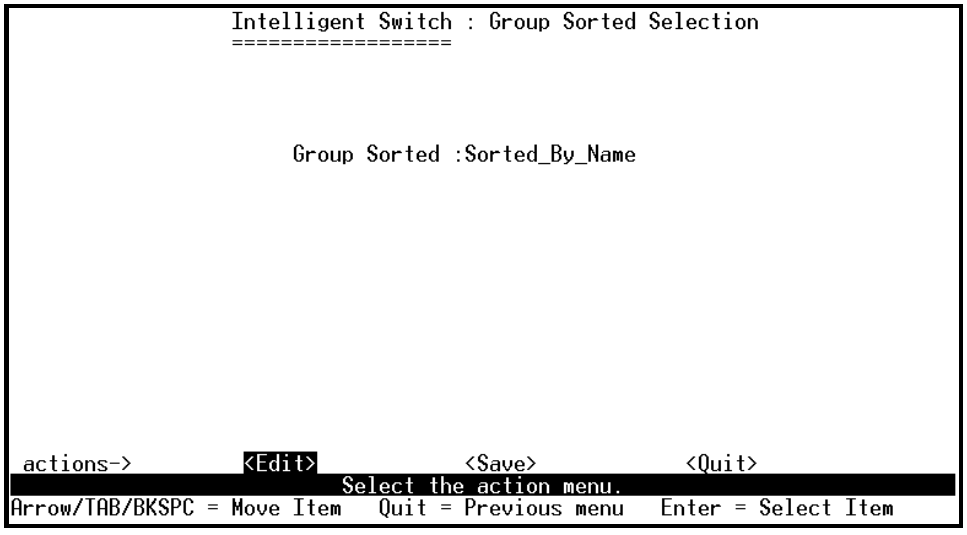
The default VLAN can't be deleted.

Groups Sorted Mode

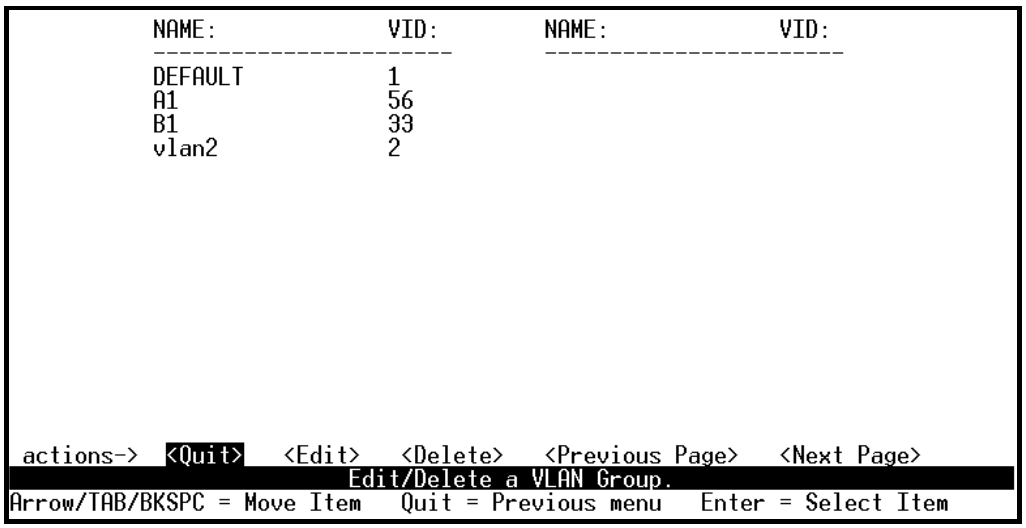
In this page, user can select VLAN groups sorted mode:

- sorted by name
- sorted by VID.

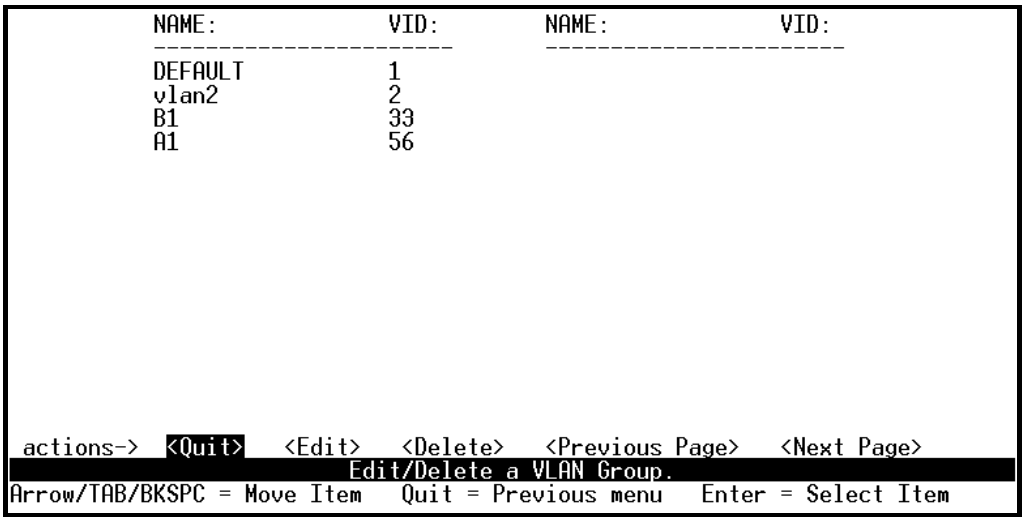
The *Edit/Delete a VLAN group* page will display the result.


Intelligent Switch : Group Sorted Selection
Group Sorted :Sorted_By_Name
actions-> <Edit> <Save> <Quit>
Select the action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

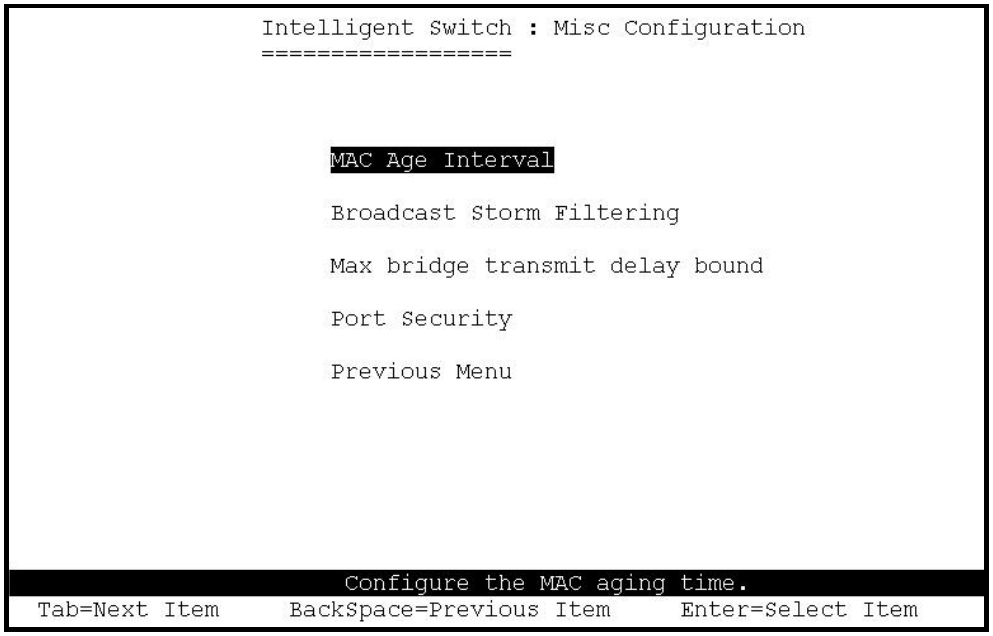
In the *Edit/Delete a VLAN Group* page, the result of sorted by name.



In the *Edit/Delete a VLAN Group* page, the result of sorted by VID.

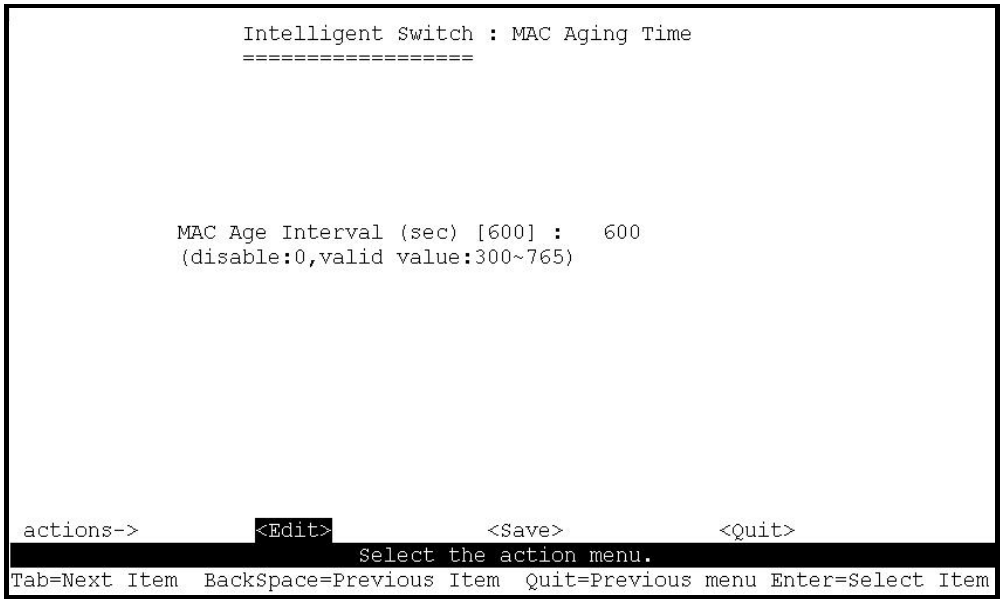


Misc Configuration



MAC Age Interval

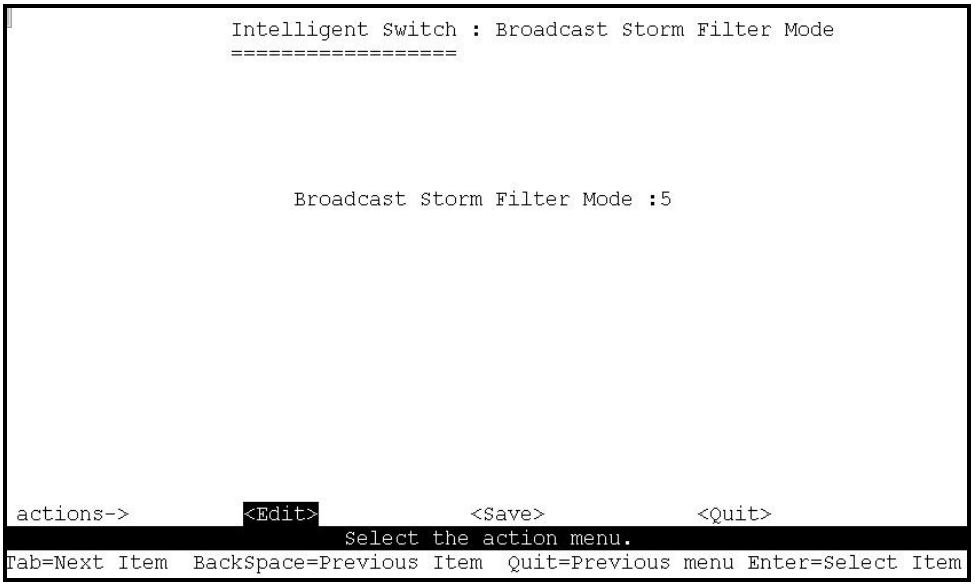
Type the number of seconds that an inactive MAC address remains in the switch's address table.
The valid range is 300~765 seconds. Default is 300 seconds.



Broadcast Storm Filtering

This page is configuring broadcast storm control.

- Press <Edit> to configure the broadcast storm filter mode.
- Press Space key to choose the threshold value.
- The valid threshold value is 5%, 10%, 15%, 20%, 25% and NO. Default is 5%.


Intelligent Switch : Broadcast Storm Filter Mode
Broadcast Storm Filter Mode :5
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

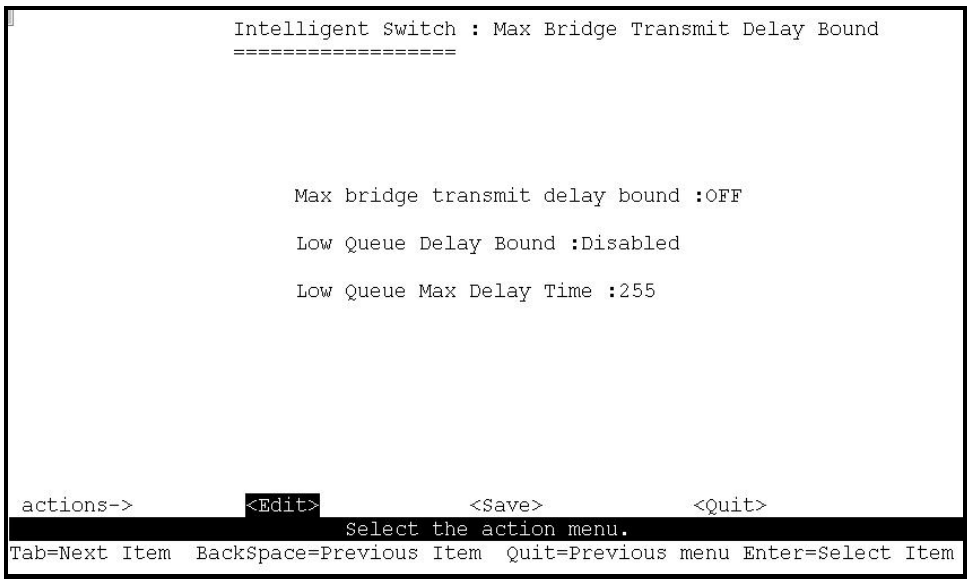
Max bridge transmit delay bound

- Max bridge transmit delay bound: Limit the packets queuing time in switch. If enabled, the packets queued exceed will be drop. Press Space key to set the time. Those valid values are 1sec, 2sec, 4sec and off. Default is off.

- Low Queue Delay Bound: Limit the low priority packets queuing time in switch. If enabled, the low priority packet stays in switch exceed Low Queue Max Delay Time, it will be sent. Press Space key to enable or disable this function. Default is disable.

- Low Queue Max Delay Time: To set the time that low priority packets queuing in switch. The valid range is 1~255ms. Default Max Delay Time is 255ms.

***NOTE**: Make sure "Max bridge transit delay bound control" is enabled before enabling Low Queue Delay Bound, because Low Queue Delay Bound must be work under "Max bridge transit delay bound control" is enabled situation.*


Intelligent Switch : Max Bridge Transmit Delay Bound
Max bridge transmit delay bound :OFF
Low Queue Delay Bound :Disabled
Low Queue Max Delay Time :255
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

Port Security

A port in security mode will be “locked” without permission of address learning. Only the incoming packets with SMAC already existing in the address table can be forwarded normally. User can disable the port from learning any new MAC addresses, then use the static MAC addresses screen to define a list of MAC addresses that can use the secure port.

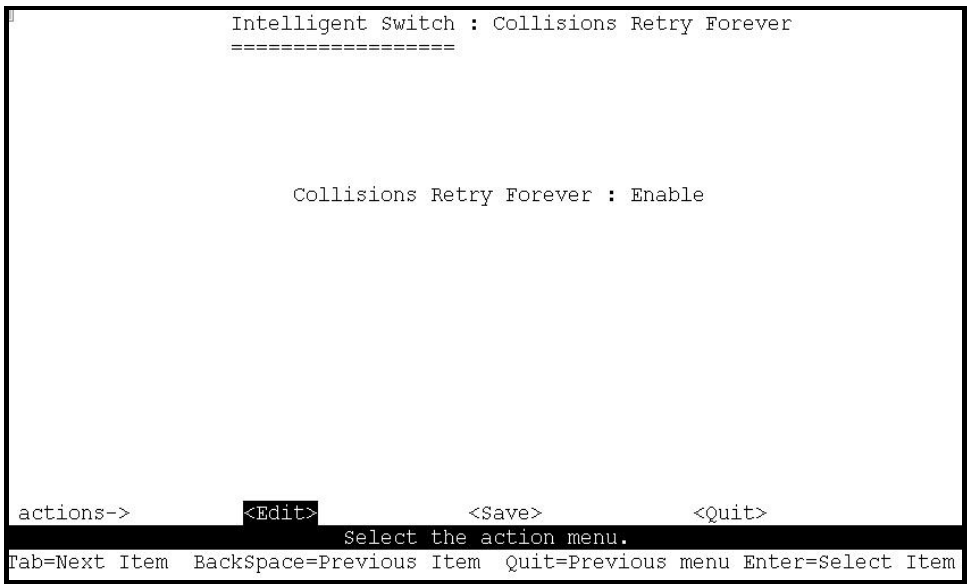
Actions->

- Select <Edit>.
- Press Space key to choose enable / disable item.
- Press Ctrl+A to go back action menu line.

- Select <Save> to save all configure value.
- You can press <Next Page> to configure port9 ~ port26, press <Previous Page> return to last page.

Collision s Retry Forever

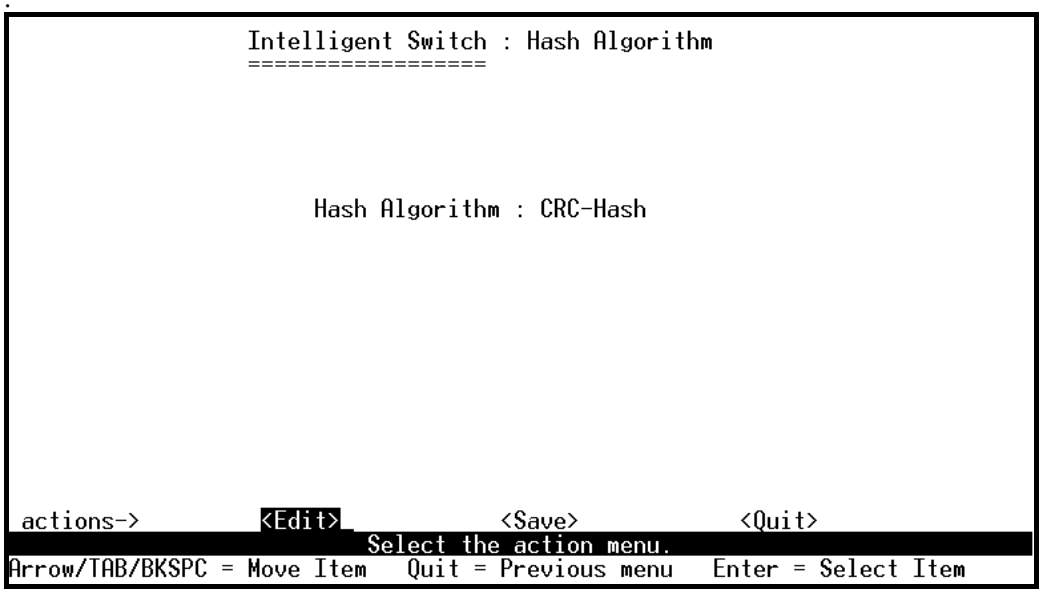
- Collisions Retry Forever: Disable – In half duplex, if happen collision will retry 48 times and then drop frame.
- Enable – In half duplex, if happen collision will retry forever (Default).


Intelligent Switch : Collisions Retry Forever
Collisions Retry Forever : Enable
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

Hash Algorithm

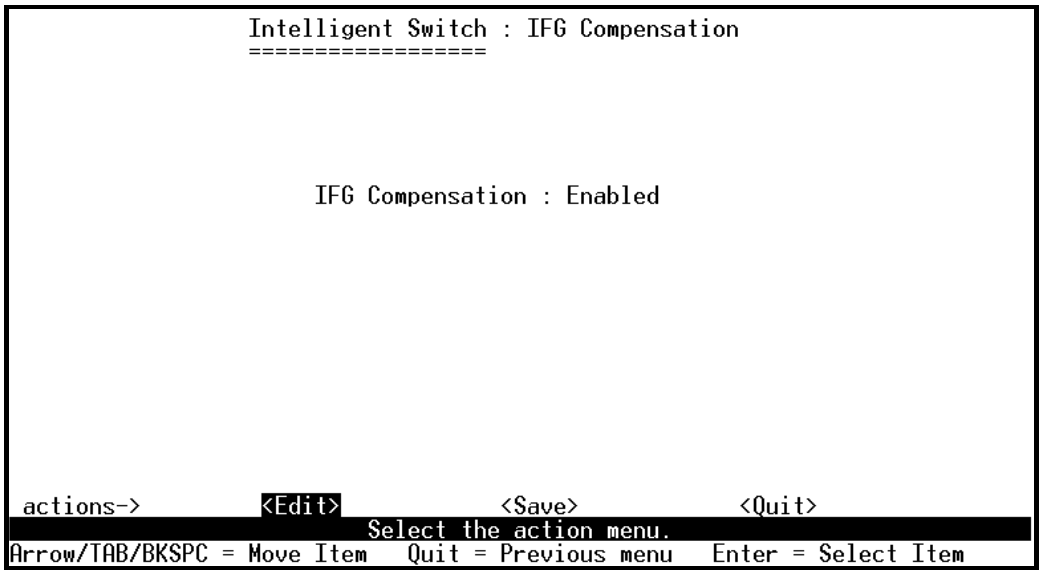
Select CRC-Hash (default) or DirectMap for Hash algorithm

.

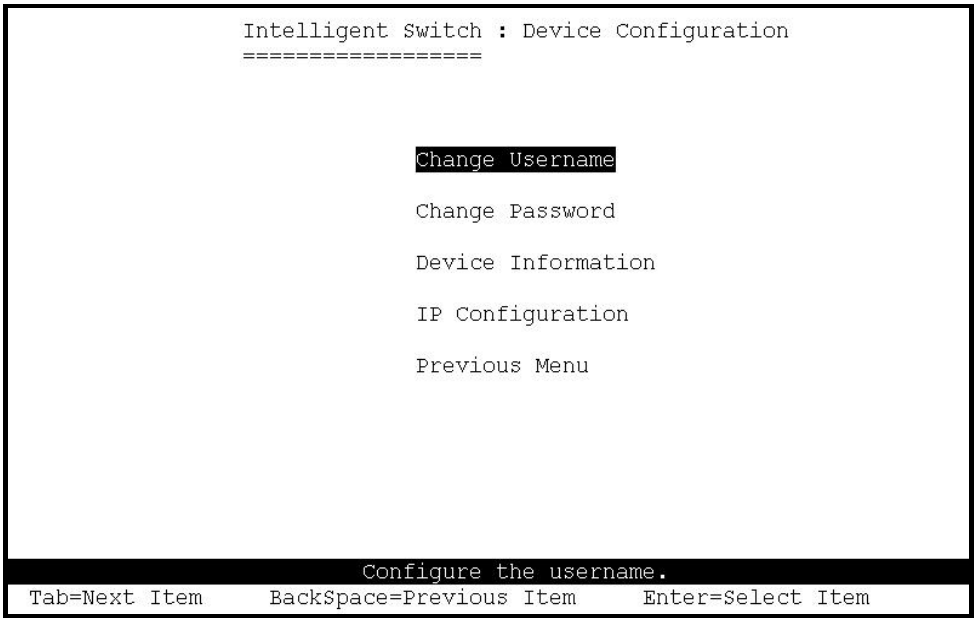

Intelligent Switch : Hash Algorithm
Hash Algorithm : CRC-Hash
actions-> <Edit> <Save> <Quit>
Select the action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

IFG Compensation

Enable or disable the inter-frame gap (IFG) compensation function

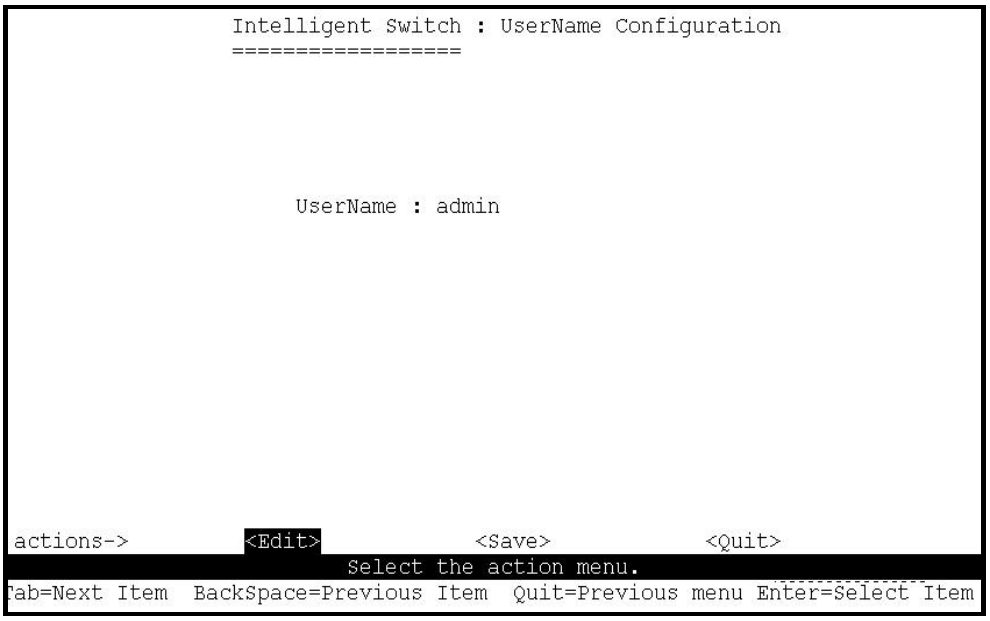


Administration Configuration



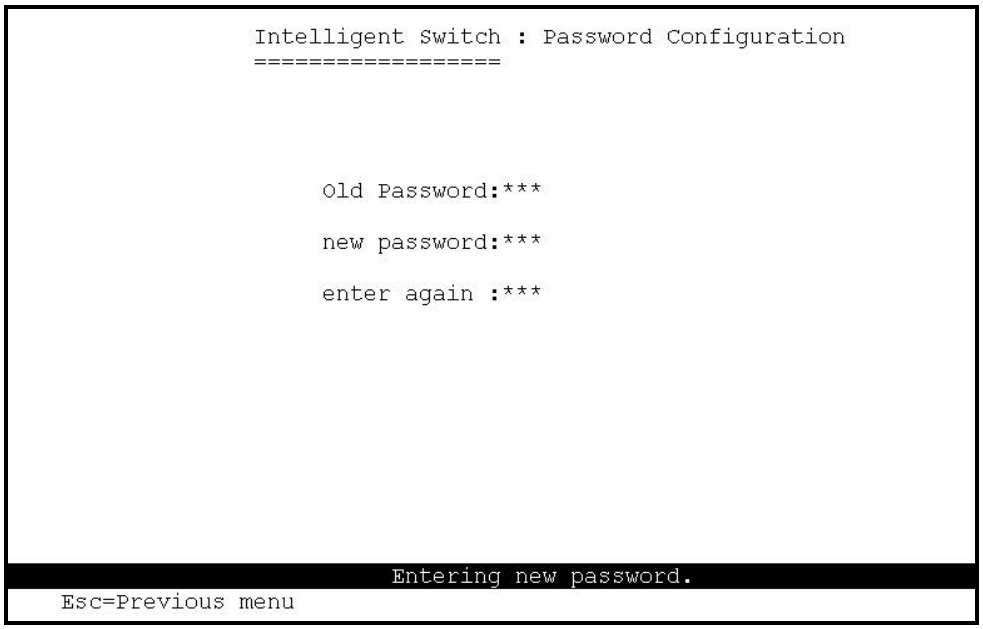
Change Username

Use this page; user can change web management user name.
Type the new user name, and then press <Save> item.



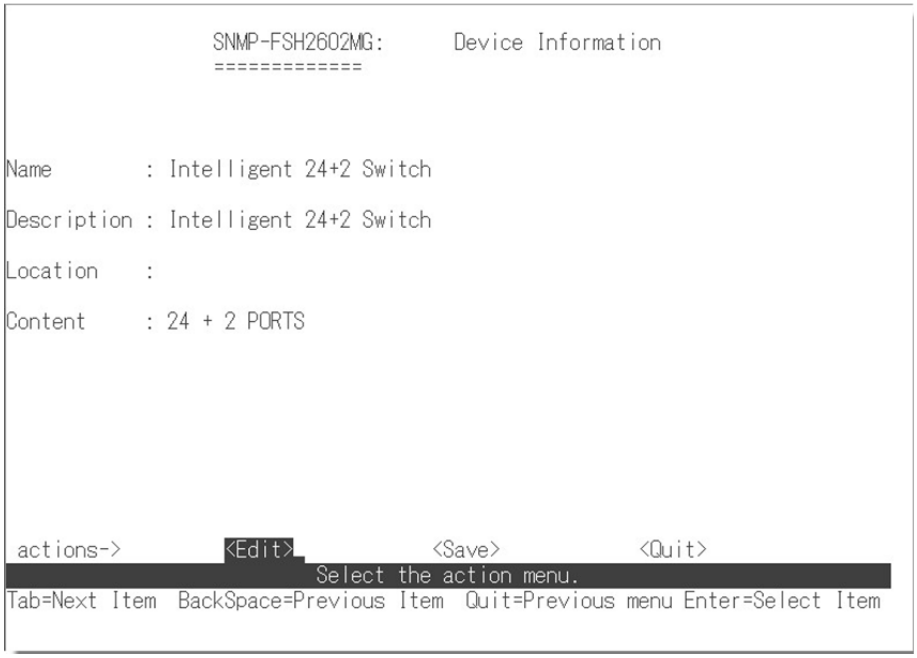
Change Password

Use this page; user can change web management login password.



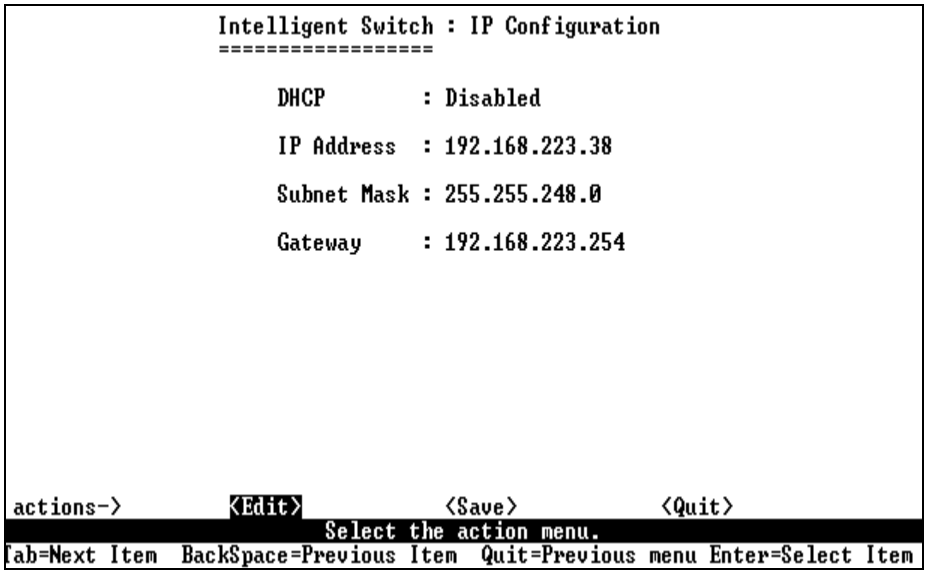
Device Information

This page is provided to the user to configure the device information.


SNMP-FSH2602MG: Device Information
Name : Intelligent 24+2 Switch
Description : Intelligent 24+2 Switch
Location :
Content : 24 + 2 PORTS
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

IP Configuration

User can configure the IP setting and fill in the new value.


Intelligent Switch : IP Configuration
DHCP : Disabled
IP Address : 192.168.223.38
Subnet Mask : 255.255.248.0
Gateway : 192.168.223.254
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

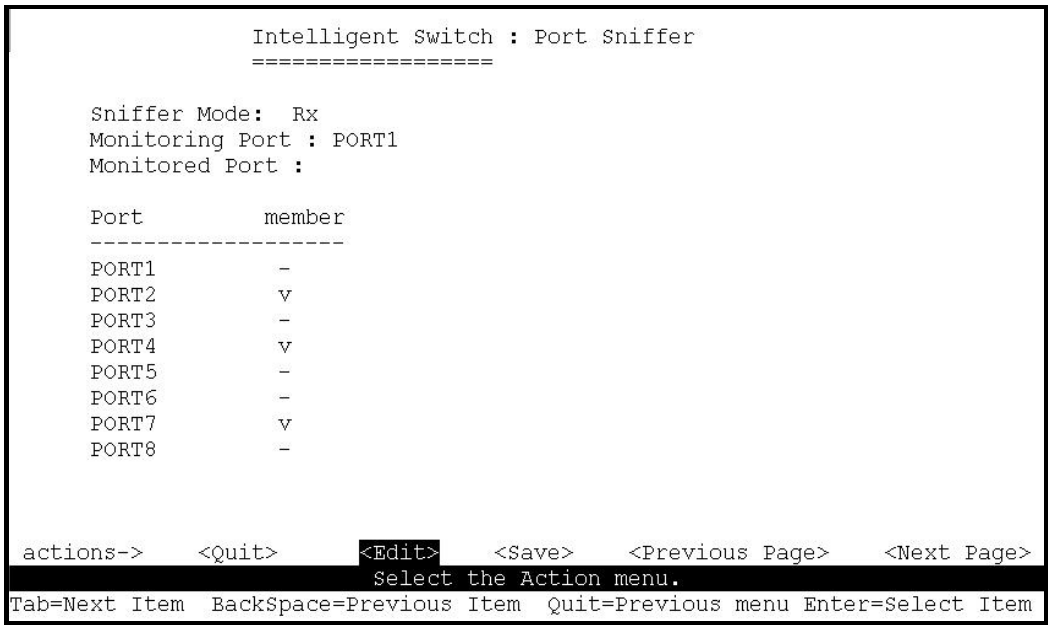
Port Mirror Configuration

The port mirroring is a method for monitor traffic in switched networks. Traffic through ports can be monitored by one specific port. That is traffic goes in or out monitored ports will be duplicated into monitoring port.

Actions->

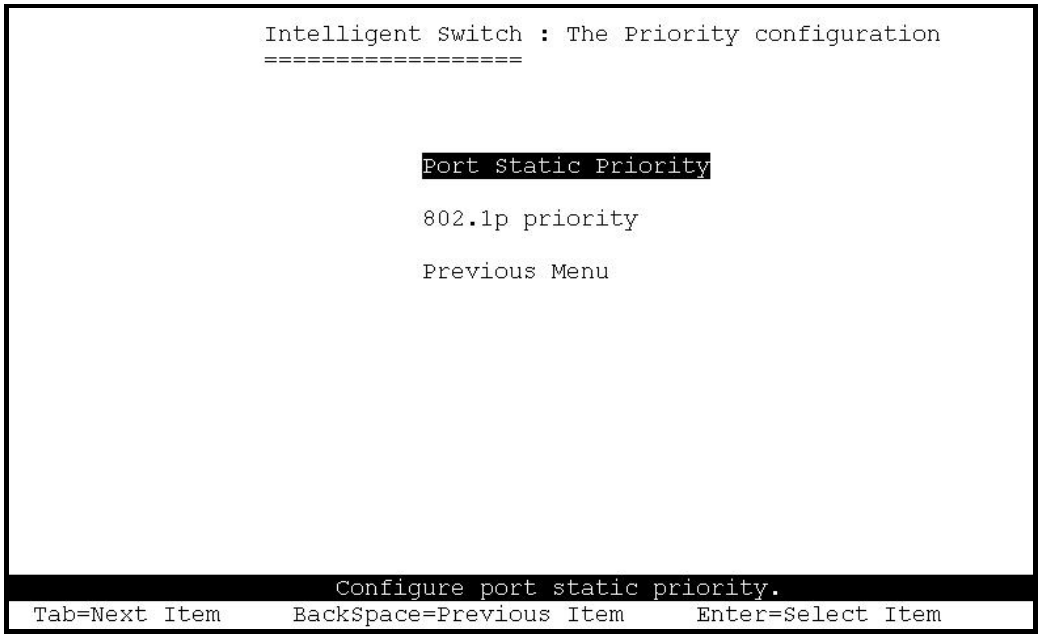
- Press Space key to change configure of per item.
- Select <Edit>.
- Sniffer Mode: Press Space key to set sniffer mode Disable、Rx、Tx or Both.
- Monitoring Port: It means sniffer port can be used to see all monitors port traffic. Press Space key to choose it.
- Monitored Port: The ports you want to monitor. All monitor port traffic will be copied to sniffer port. You can select max 25 monitor ports in the switch. User can choose which port to monitor in only one sniffer mode. Press Space key to choose member port, "V" – is the member, "—" – not the member.
- Press Ctrl+A go back action menu line
- Select <Save> to save all configure value.

On the action menu line you can press <Next Page> to configure port9 ~ port26, press <Previous Page> return to last page.



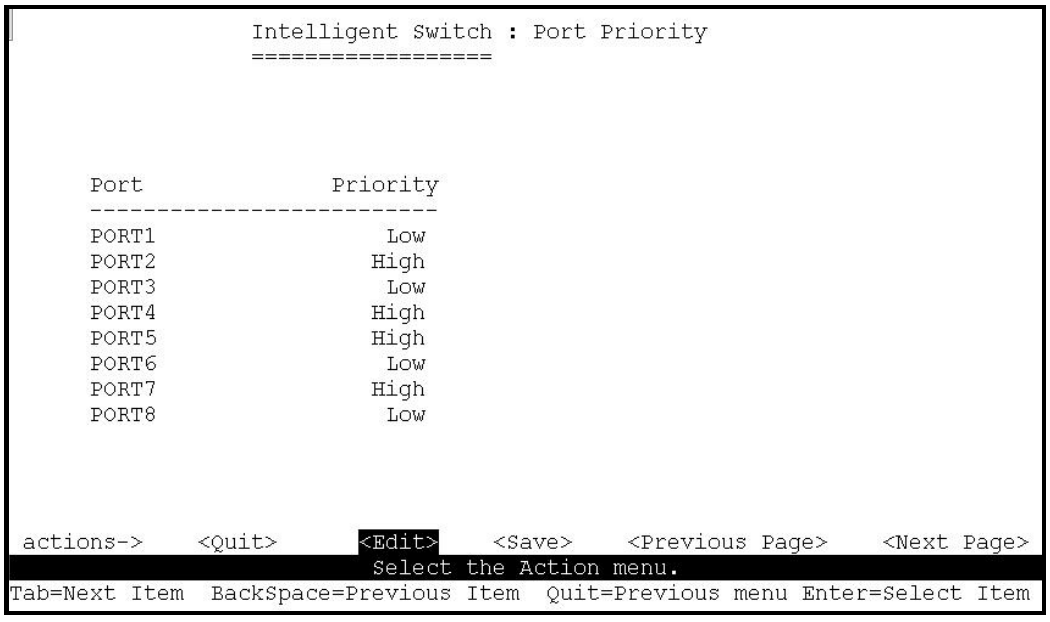
NOTE: Only has one sniffer mode in switch at the same time.

Priority Configuration



Port Static Priority

This static priority based on port, if you set the port is high priority, income frame from this port always high priority frame.

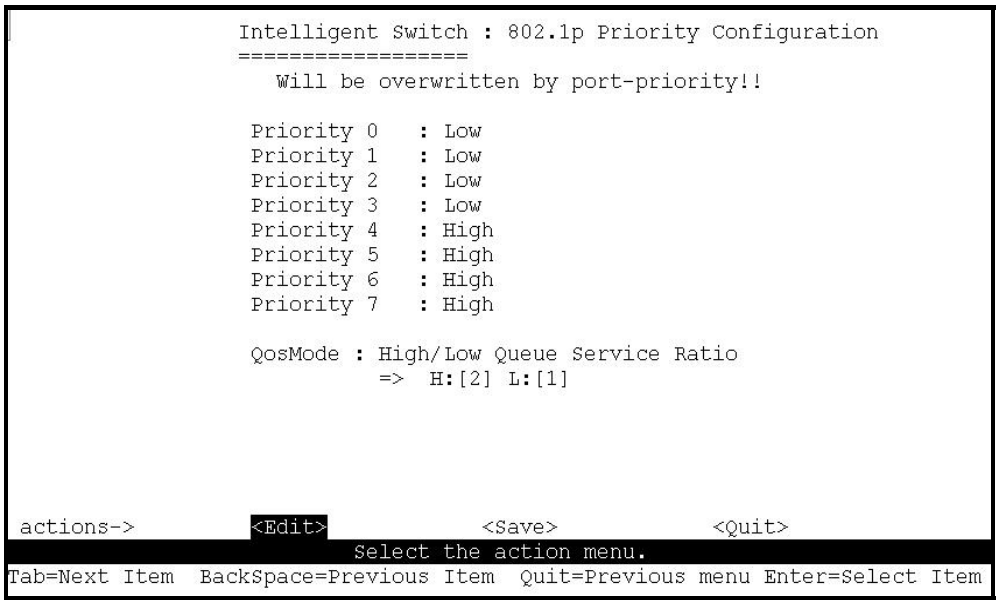


802.1p Priority Configuration

There are 0~7-priority level can map to high or low queue.

Actions->

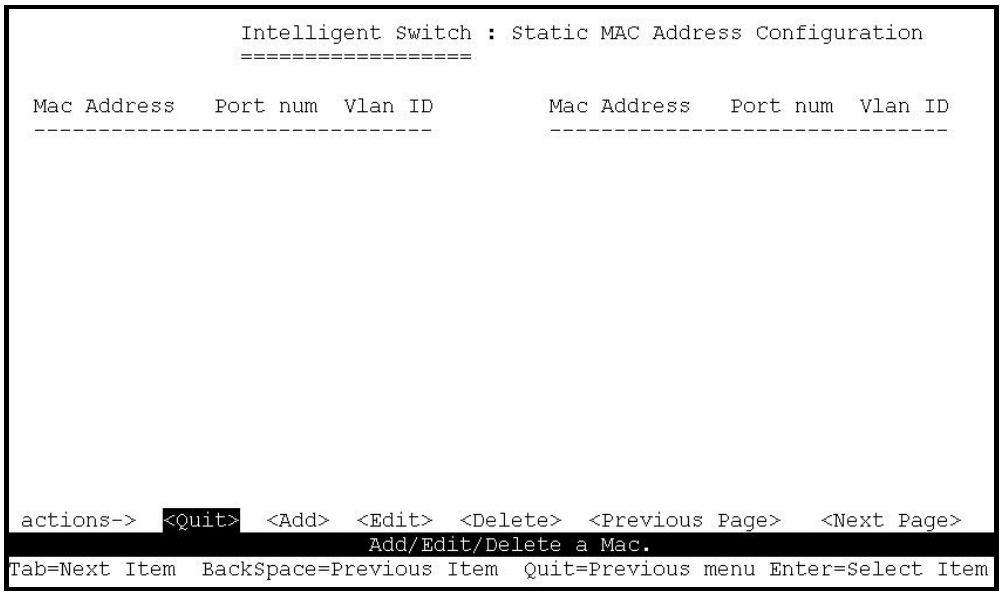
- Select <Edit>.
- Press Space key to select the priority level mapping to high or low queue.
- High/Low Queue Service Ration H：L: User can select the ratio of high priority packets and low priority packets.
- Press Ctrl+A go back action menu line.
- Select <Save> to save all configure value.


Intelligent Switch : 802.1p Priority Configuration
Will be overwritten by port-priority!!
Priority 0 : Low
Priority 1 : Low
Priority 2 : Low
Priority 3 : Low
Priority 4 : High
Priority 5 : High
Priority 6 : High
Priority 7 : High
QosMode : High/Low Queue Service Ratio
=> H:[2] L:[1]
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

MAC Address Configuration

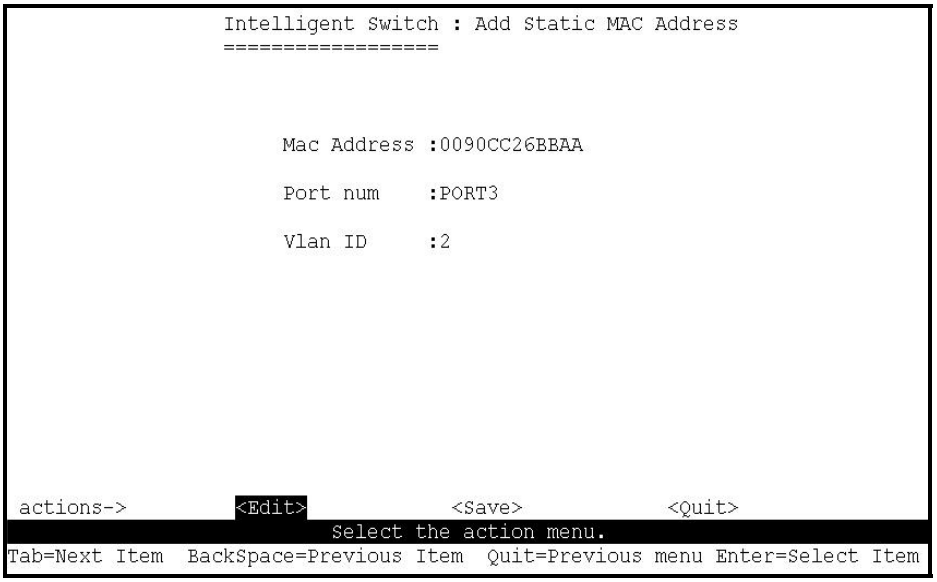
Static MAC Address

When you add a static MAC address, it remains in the switch's address table, regardless of whether the device is physically connected to the switch. This saves the switch from having to re-learn a device's MAC address when the disconnected or powered-off device is active on the network again.
In this page user can add / modify / delete a static MAC address.



Add static MAC address

- Press <Add> --> <Edit> key to add static MAC address.
- MAC Address: Enter the MAC address to and from which the port should permanently forward traffic, regardless of the device's network activity.
- Port num: press <Space> key to select the port number.
- Vlan ID: If tag-based (802.1Q) VLAN are set up on the switch, static addresses are associated with individual VLANs. Type the VID to associate with the MAC address.
- Press Ctrl+A to go back action menu line.
- Then select <Save> to save all configure value.

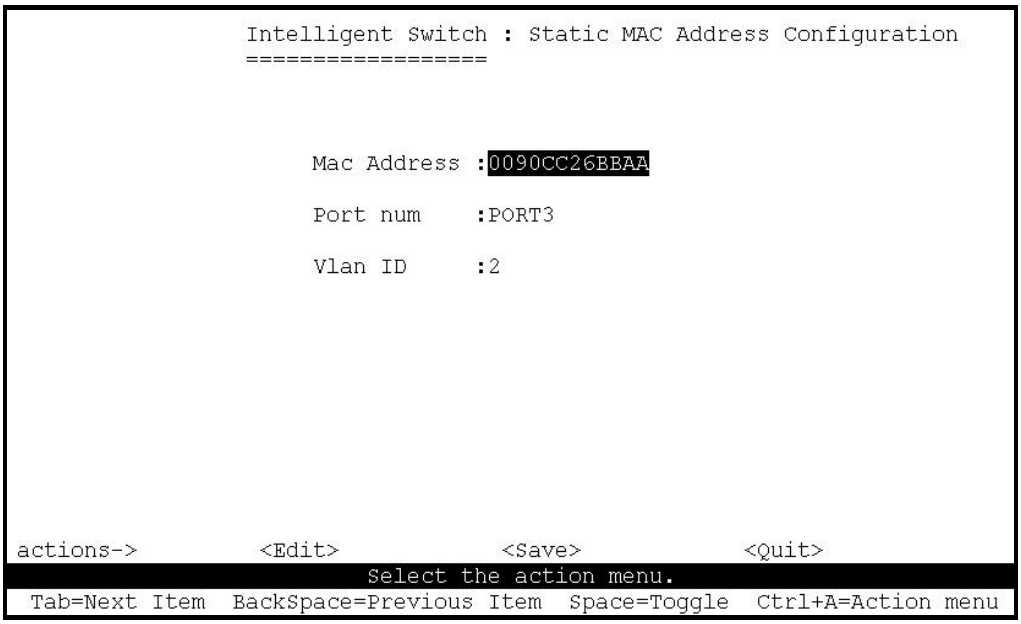


Edit static MAC address

- Press <Edit> key.
- Choose the MAC address that you want to modify and then press enter.

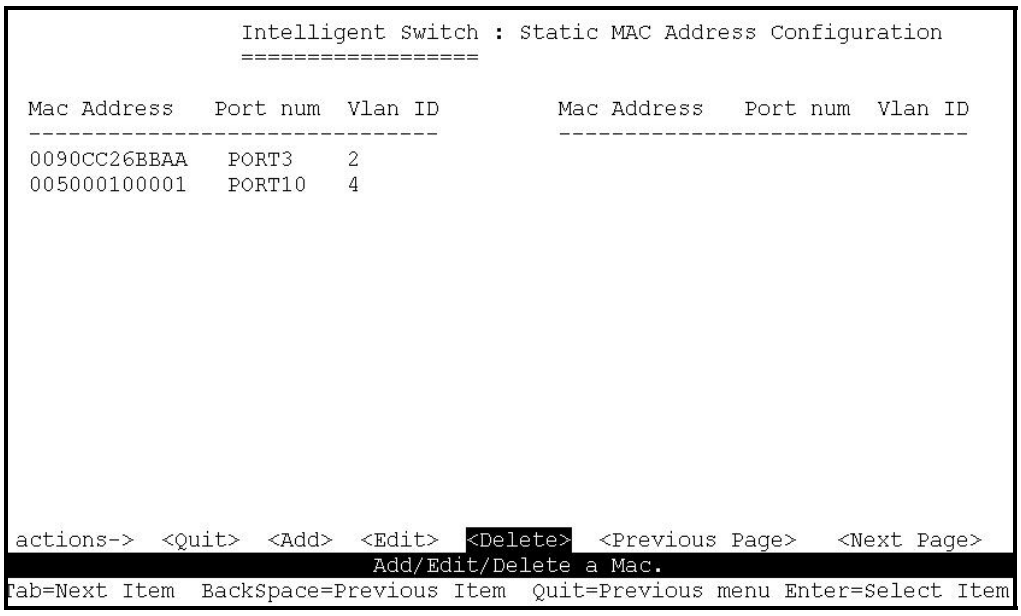
Press <Edit> key to modify all the items.

Press Ctrl +A to go back action menu line, and then select <Save> to save all configure value.



Delete static MAC address

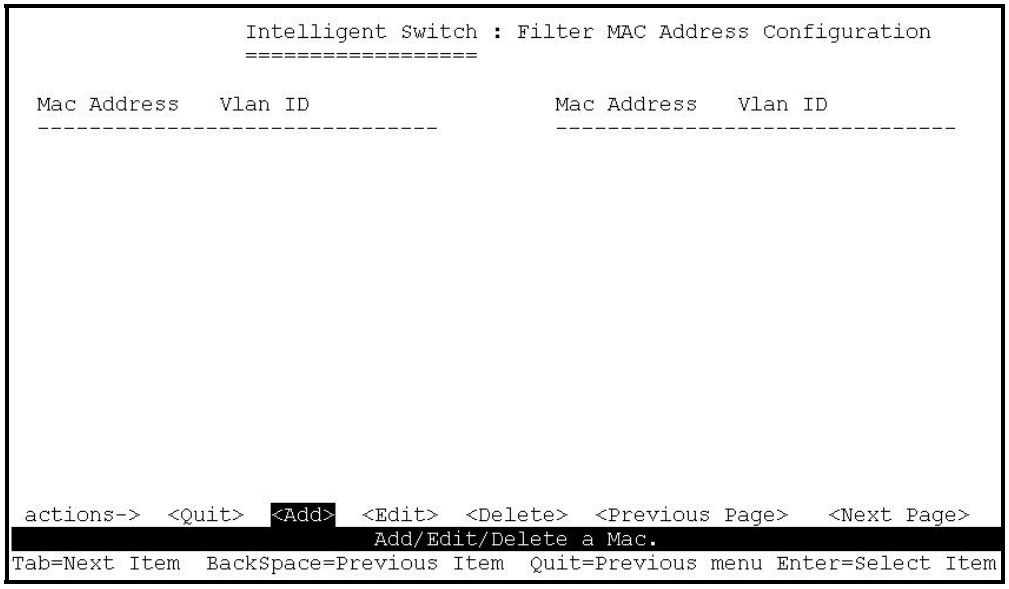
- Press <Delete> key.
- Choose the MAC address that you want to delete and then press enter.
- Pressing <Enter> once will complete deletion on delete mode.



Filtering MAC Address

MAC address filtering allows the switch to drop unwanted traffic. Traffic is filtered based on the destination addresses.

In this page user can add /modify /delete filter MAC address.

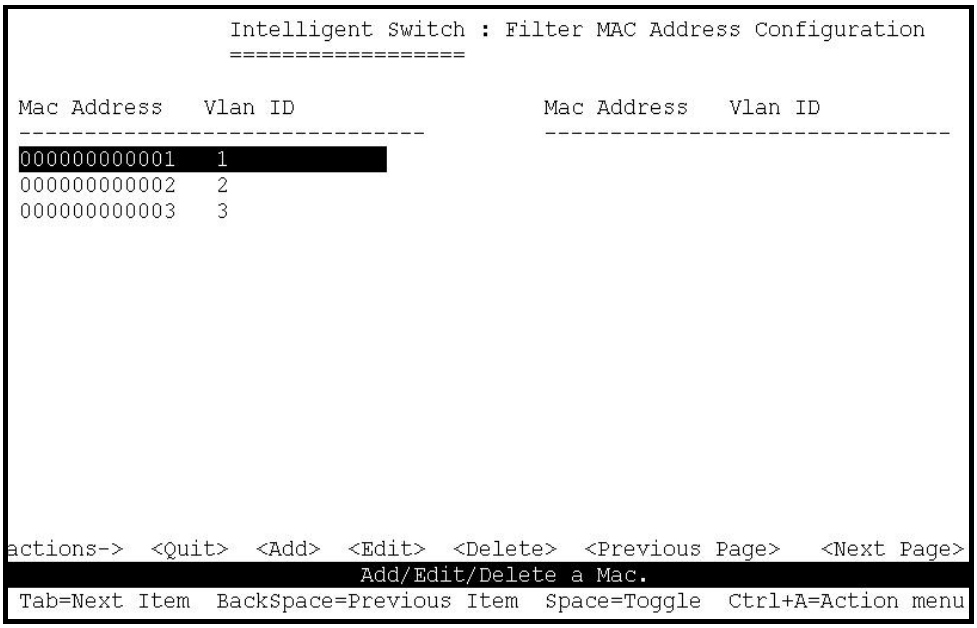


Add filter MAC address

- Press <Add> --> <Edit> key to add a filter MAC address.
- MAC Address: Type the MAC address to filter.
- Vlan ID: If tag-based (802.1Q) VLAN are set up on the switch, type the VID to associate with the MAC address.
- Press Ctrl+A to go back action menu line, and then select <Save> to save all configure value.

Edit filter MAC address

- Press <Edit> key.
- Choose the MAC address that you want to modify and then press enter.

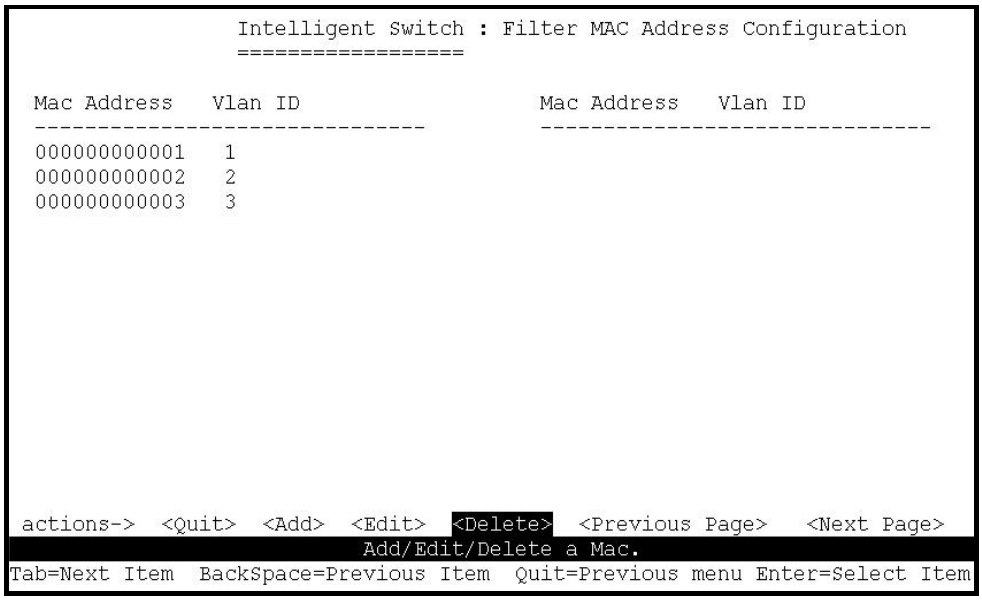


- Press <Edit> key to modify all the items.
- Press Ctrl+A to go back action menu line, and then select <Save> to save all configure value.

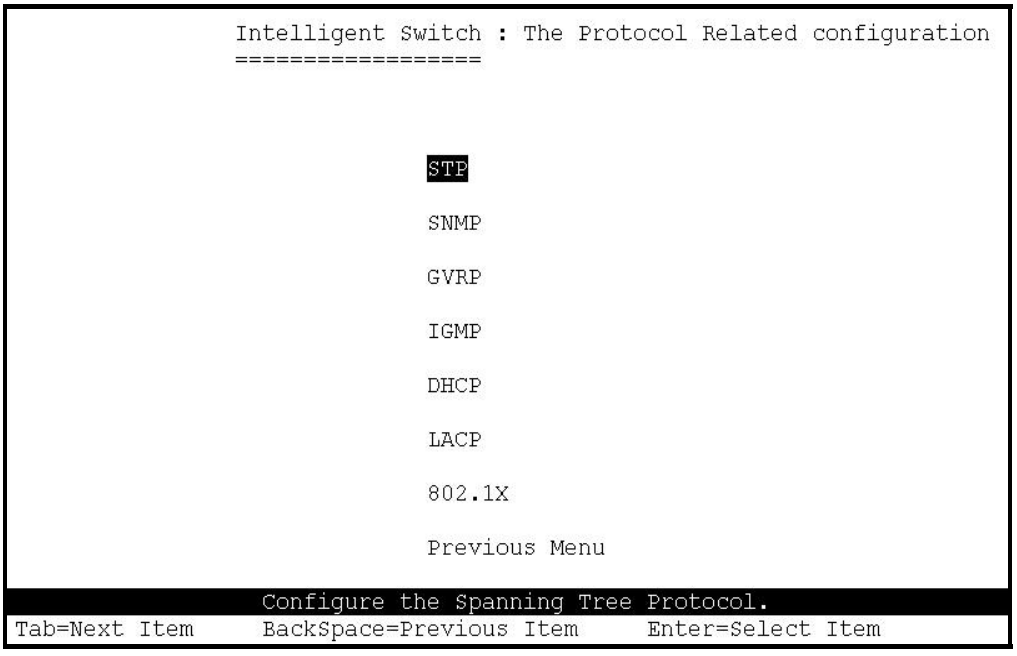
Intelligent Switch : Edit Filter MAC Address
Mac Address :000000000001
Vlan ID :1
actions-> <Edit> <Save> <Quit>
Can not modify for Read Only item.
Tab=Next Item BackSpace=Previous Item Space=Toggle Ctrl+A=Action menu

Delete filter MAC address

- Press <Delete> key to delete a filter MAC address.
- Choose the MAC address that you want to delete and then press enter.
- When pressing <Enter> once will complete deletion on delete mode.

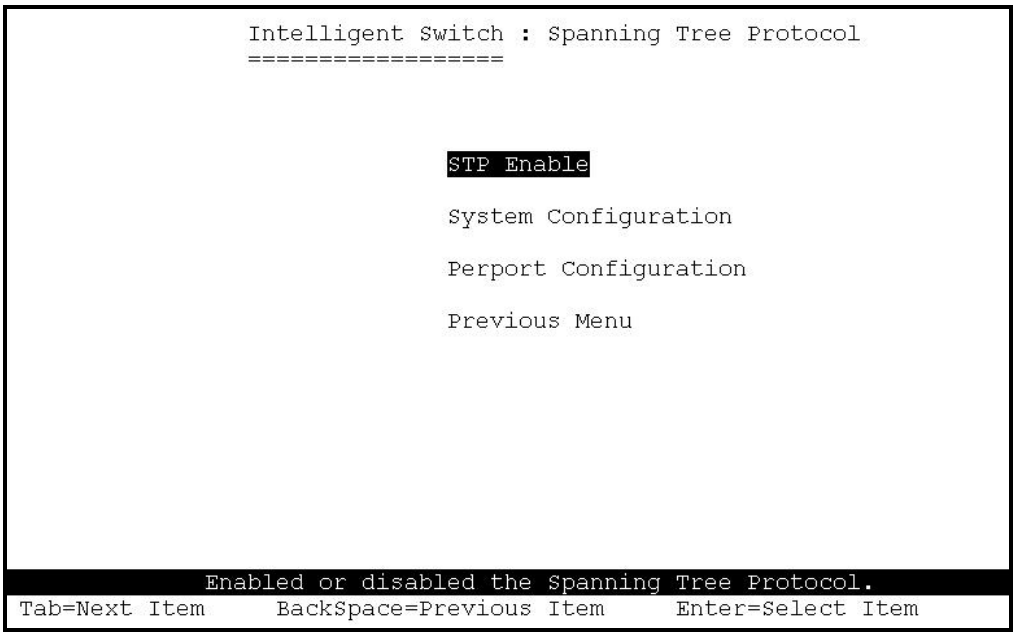


Protocol Related Configuration



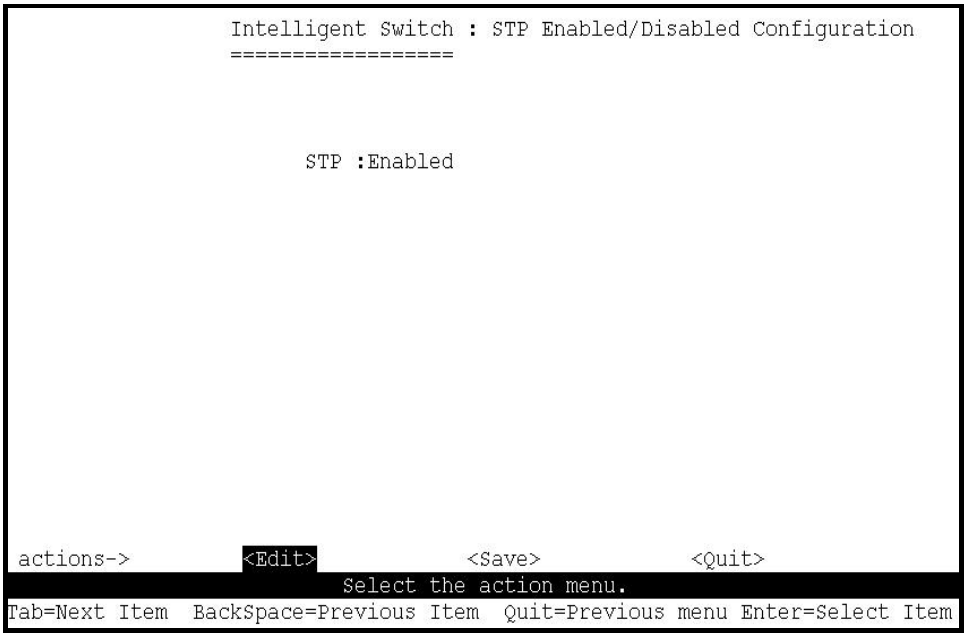
STP: Spanning Tree Protocol

The Spanning-Tree Protocol (STP) is a standardized method (IEEE 802.1D) for avoiding loops in switched networks. When STP enabled, to ensure that only one path at a time is active between any two nodes on the network.

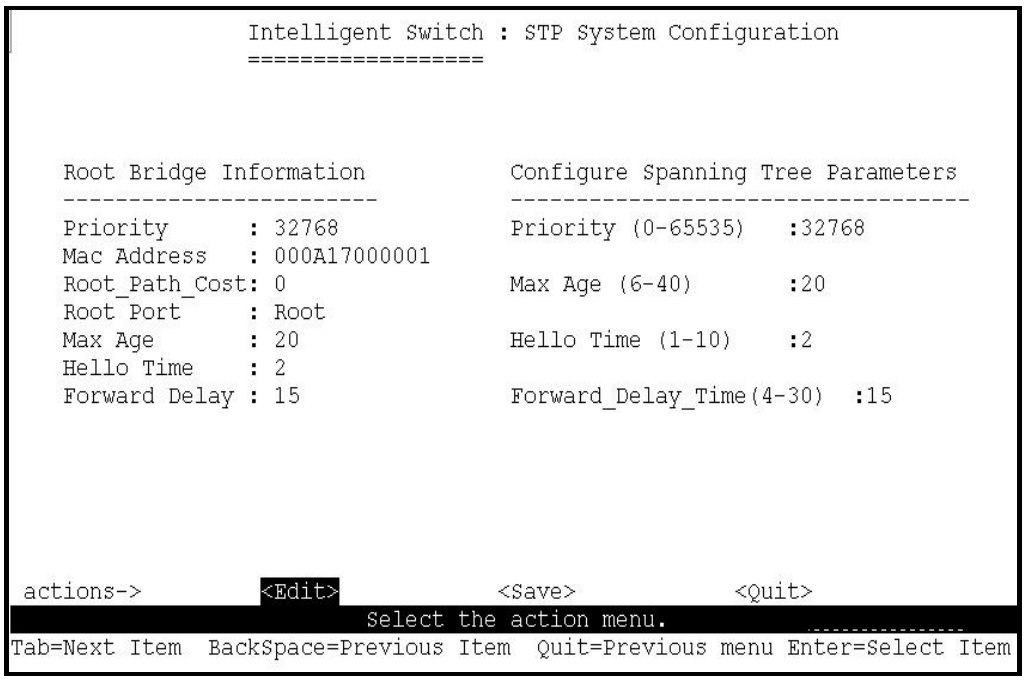


STP Enable

This page is showed the users how to enable or disable Spanning Tree function. Press Space key to select enable or disable.


Intelligent Switch : STP Enabled/Disabled Configuration
STP :Enabled
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

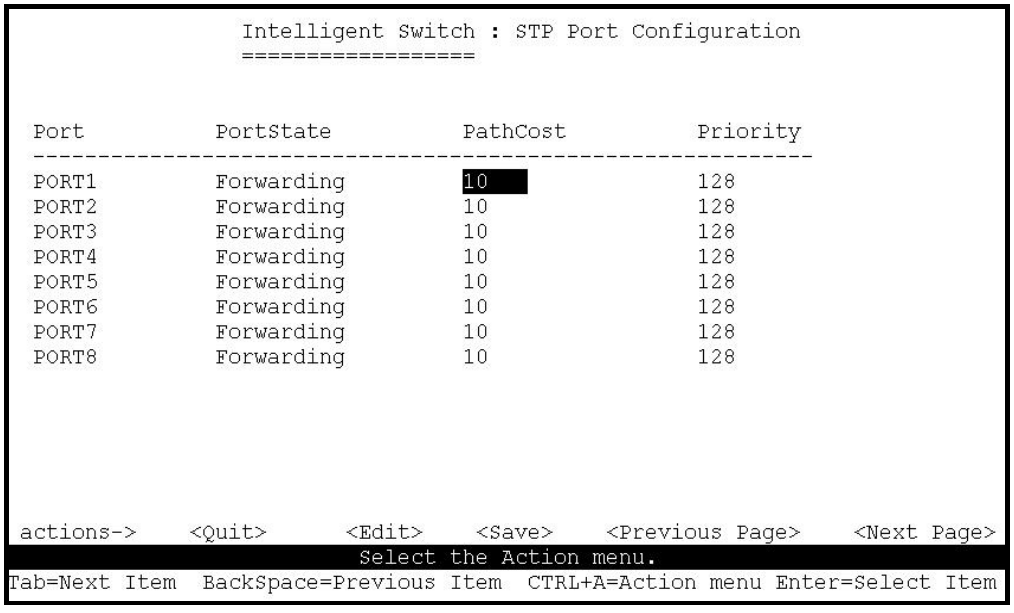
STP System Configuration



- You can view spanning tree information about the Root Bridge on the left.
- On the right, user can set new value for STP parameter.

NOTE: All about the parameter description please see the sections Web configuration's explanation of Spanning Tree.

Perport Configuration



- PortState: Display spanning tree status about the switch for per port is forwarding or blocking.
- Select <Edit>.
- PathCost: Specifies the path cost of the port that switch uses to determine which port are the forwarding ports.
- Priority: This means priority port, you can make it more or less likely to become the root port.
- Press Ctrl +A back to action menu line.
- Select <Save> to save all configure value.
- On the action menu line you can press <Next Page> to configure port9 ~ port26, press <Previous Page> return to last page.

NOTE: All about the parameter description please see the sections Web configuration's explanation of Spanning Tree.

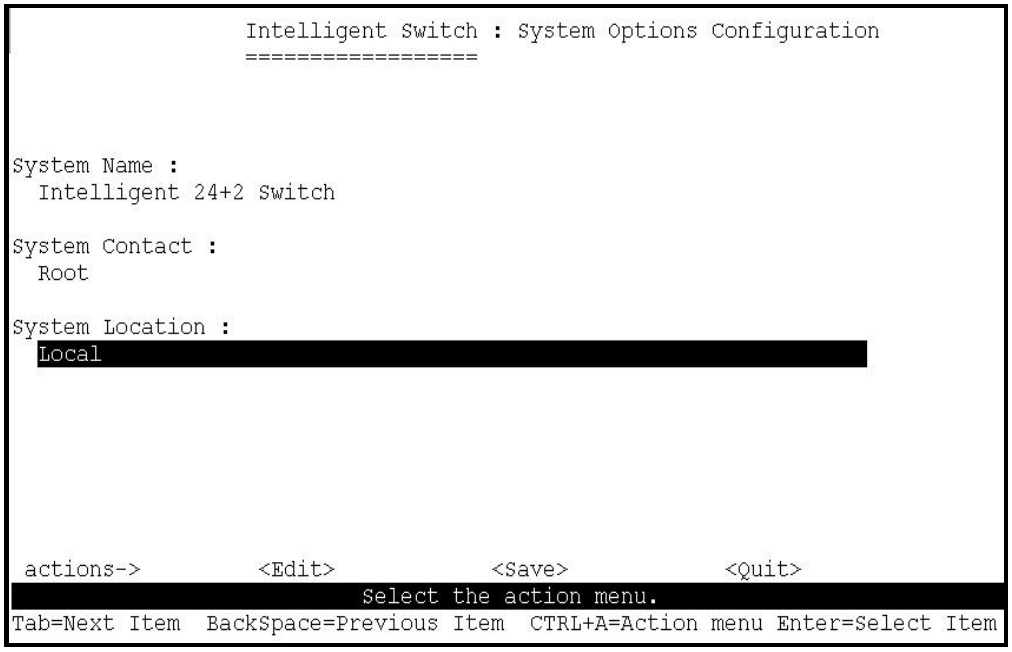
SNMP

Any Network Management running the simple Network Management Protocol (SNMP) can be management the switch.

Use this page to define management stations as trap managers and to enter SNMP community strings. User can also define a name, location, and contact person for the switch.

System Options

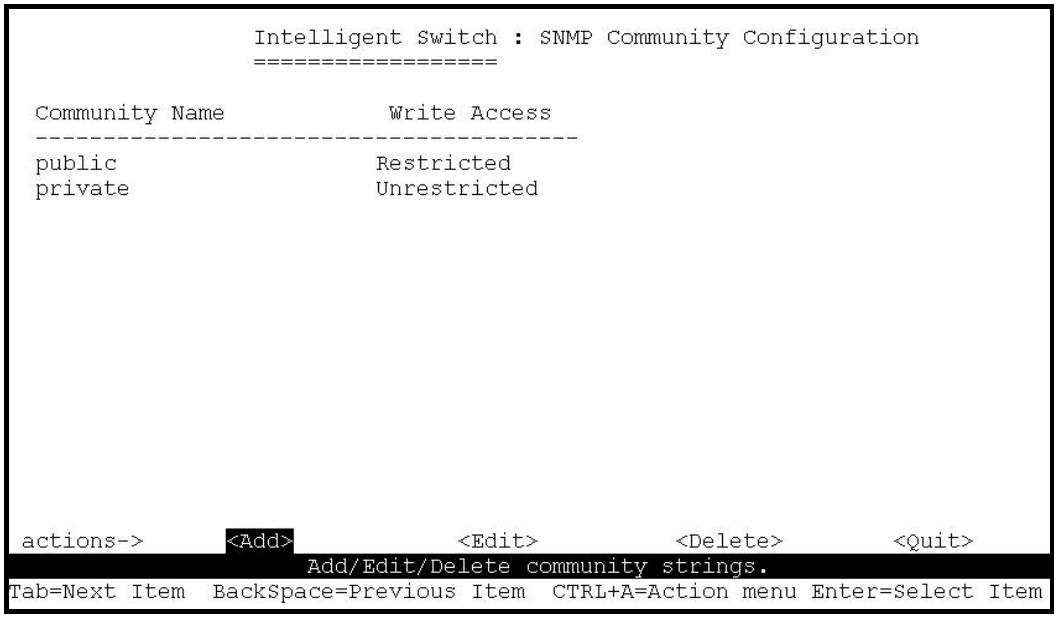
- Press <Edit>.
- System Name: Type a name to be used for the switch.
- System Contact: Type the name of contact person or organization.
- System Location: Type the location of the switch.
- Press Ctrl+A go back action menu line.
- Press <Save> to save the configure value.



Community Strings

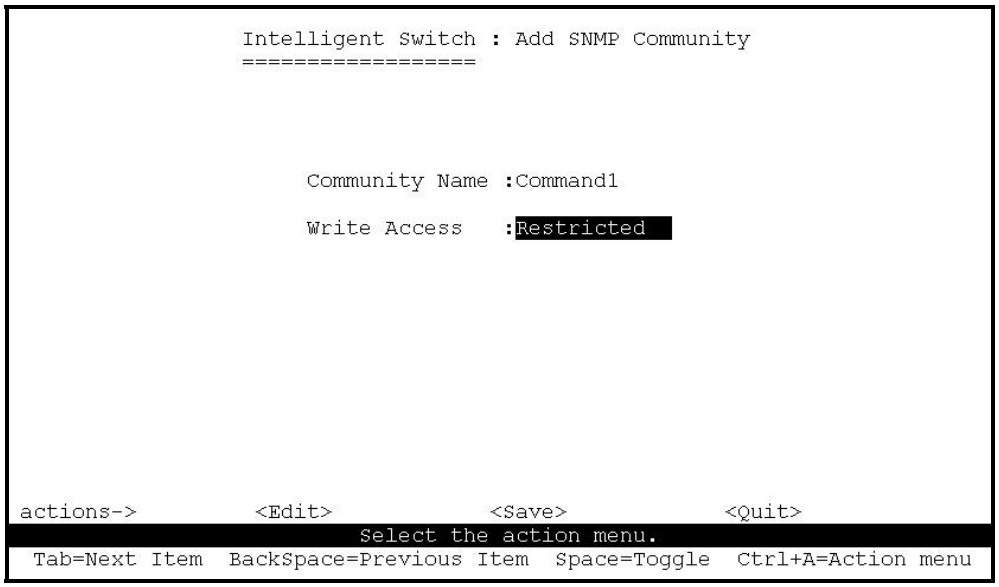
Use this page to Add/ Edit/ Delete SNMP community strings.

- Community Name: The name of current strings.
- Write Access: Enable the rights is read only or read-write.
- Restricted: Read only, enables requests accompanied by this string to display MIB-object information.
- Unrestricted: Read write, enables requests accompanied by this string to display MIB-object information and to set MIB objects.



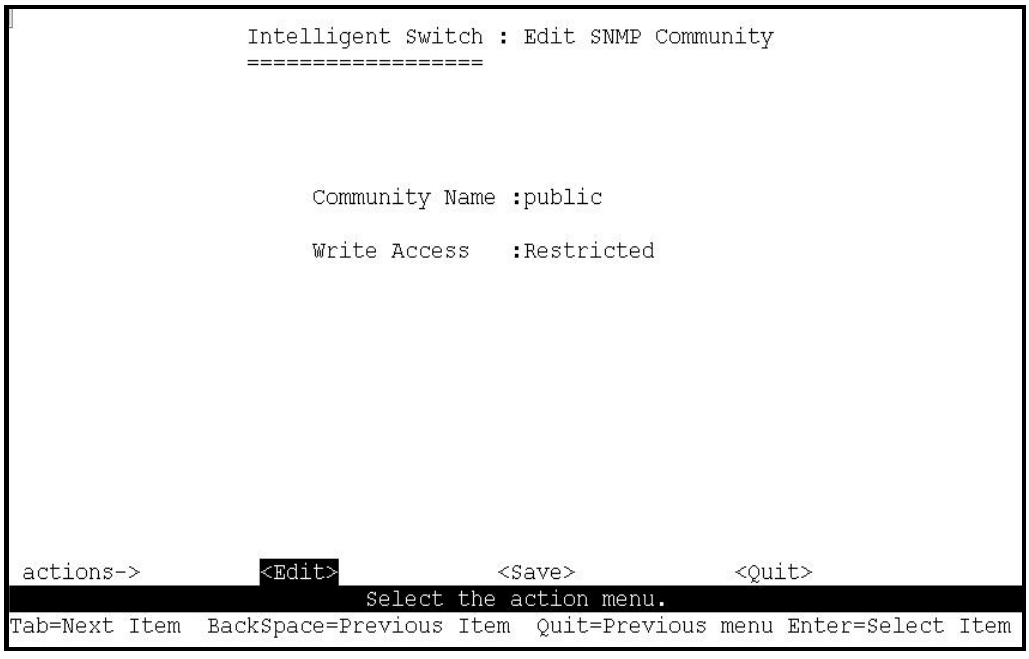
Add Community Name

- Press <Add> --> <Edit> key.
- Community Name: Type the community name.
- Write Access: Press Space key to select the right is restricted or unrestricted.


Intelligent Switch : Add SNMP Community
Community Name :Command1
Write Access :Restricted
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Space=Toggle Ctrl+A=Action menu

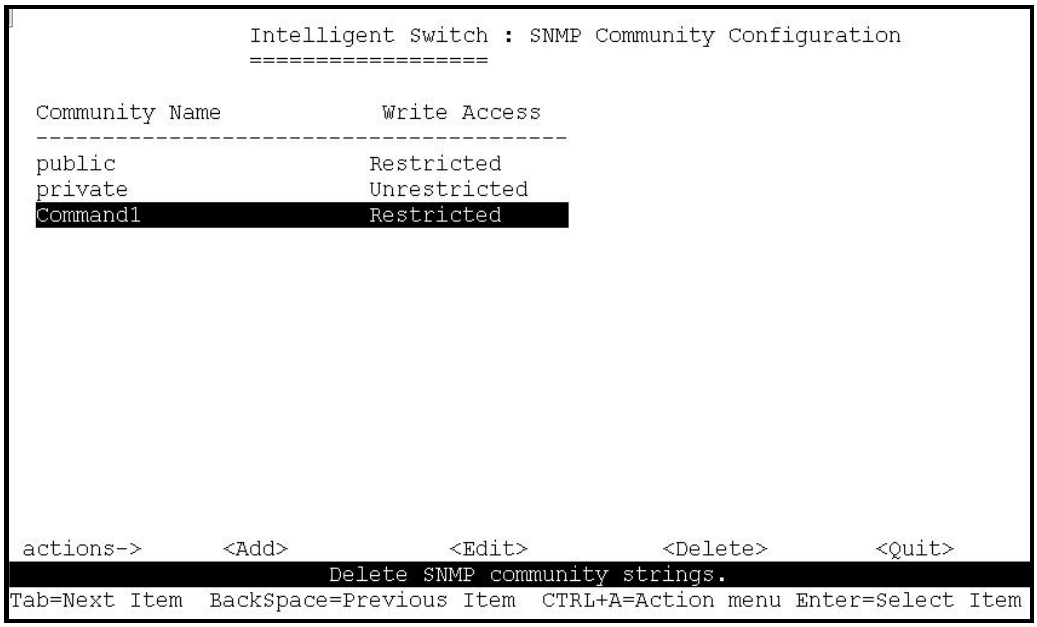
Edit Community Name

- Press <Edit> key, choose the item that you want to modify and then press Enter.
- Community Name: Type the new name.
- Write Access: Press <Space> key to change the right is restricted or unrestricted.


Intelligent Switch : Edit SNMP Community
Community Name :public
Write Access :Restricted
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

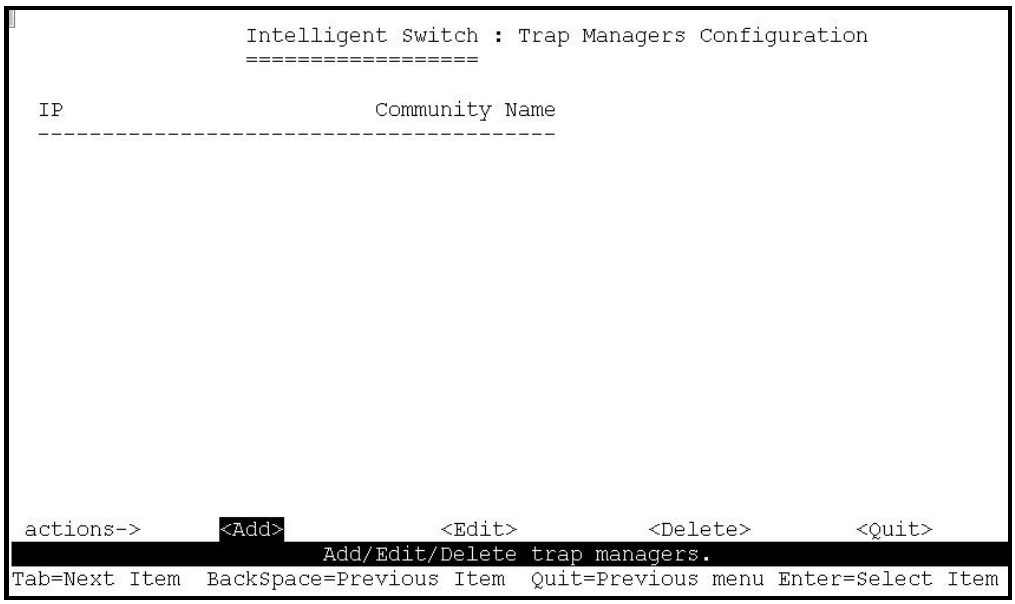
Delete Community Name

- Press <Delete> key.
- Choose the community name that you want to delete and then press enter.
- When pressing <Enter> once will complete deletion on delete mode.



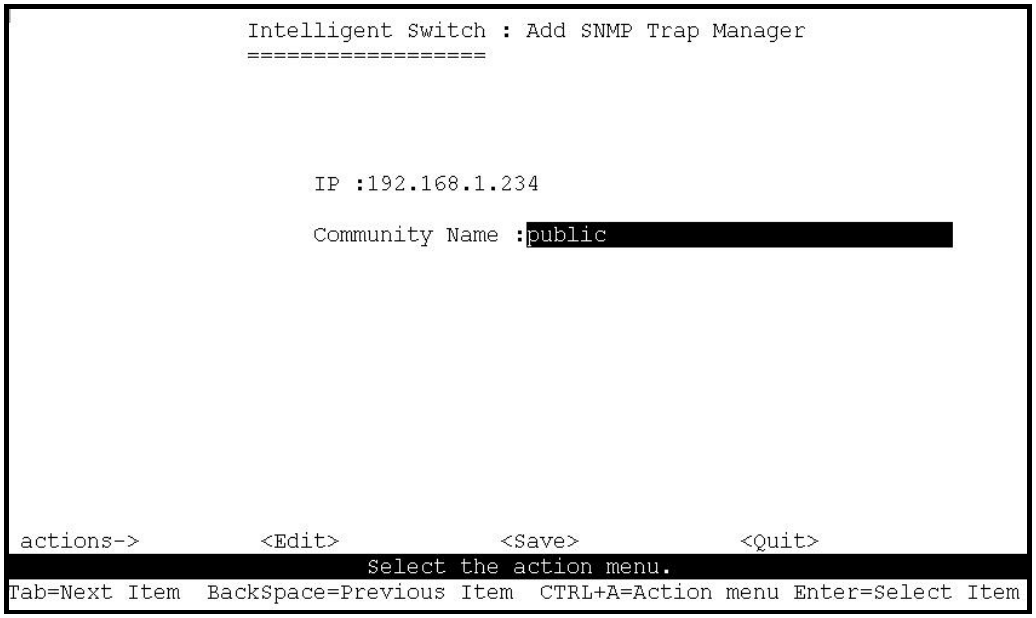
Trap Managers

A trap manager is a management station that receives traps, the system alerts generated by the switch. If no trap manager is defined, no traps are issued. Create a trap manager by entering the IP address of the station and a community string.



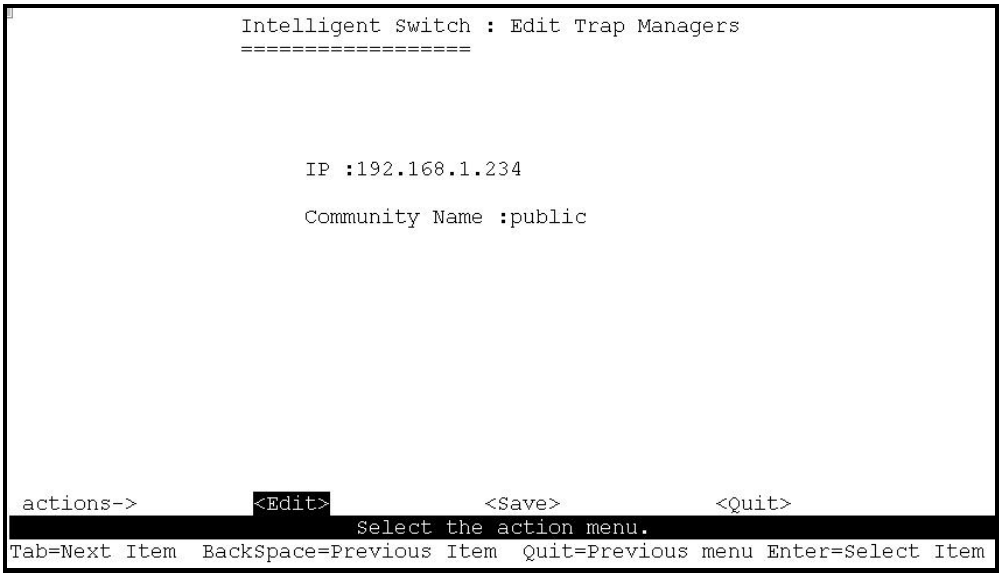
Add SNMP trap manager

- Press <Add> --> <Edit> to add the trap manager.
- IP: Type the IP address.
- Community Name: Type the community name.
- Press Ctrl +A go to actions line, press <Save> key to save all configure.


Intelligent Switch : Add SNMP Trap Manager
IP :192.168.1.234
Community Name :public
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item CTRL+A=Action menu Enter=Select Item

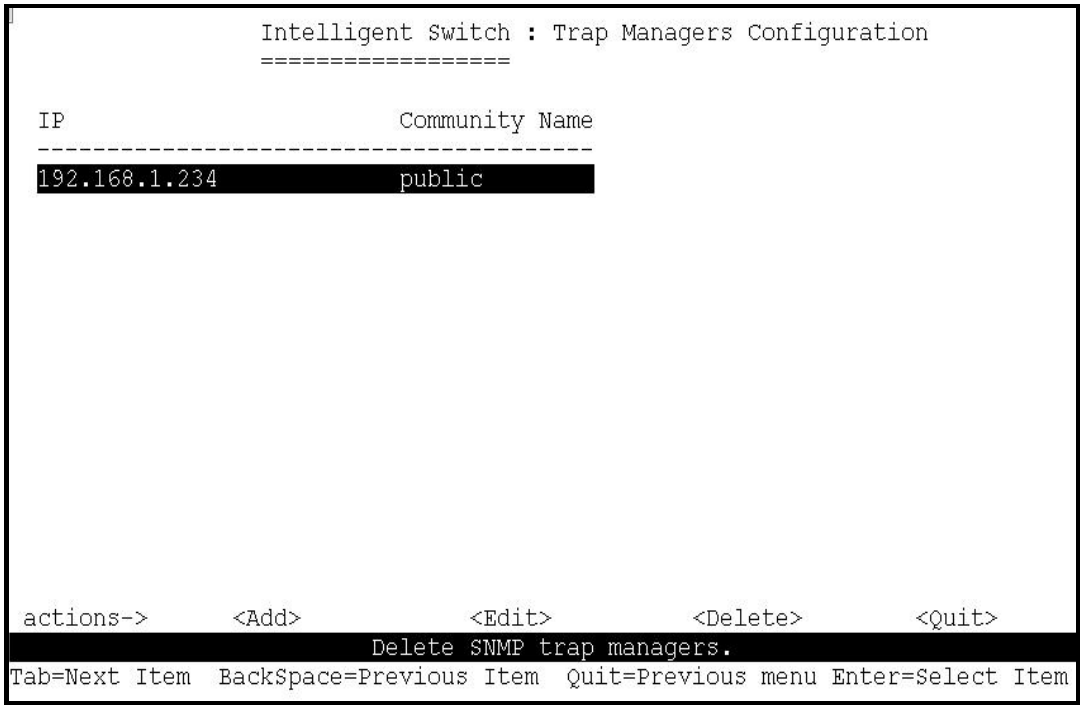
Edit trap managers

- Press <Edit> key, and then choose the item that you want to modify.
- IP: Type the new IP address
- Community Name: Type the community name.
- Press Ctrl +A go to actions line, press <Save> key to save all configure.


Intelligent Switch : Edit Trap Managers
IP :192.168.1.234
Community Name :public
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

Delete trap manager

- Press <Delete> key.
- Choose the trap manager that you want to delete and then press enter.
- When pressing <Enter> once will complete deletion on delete mode.

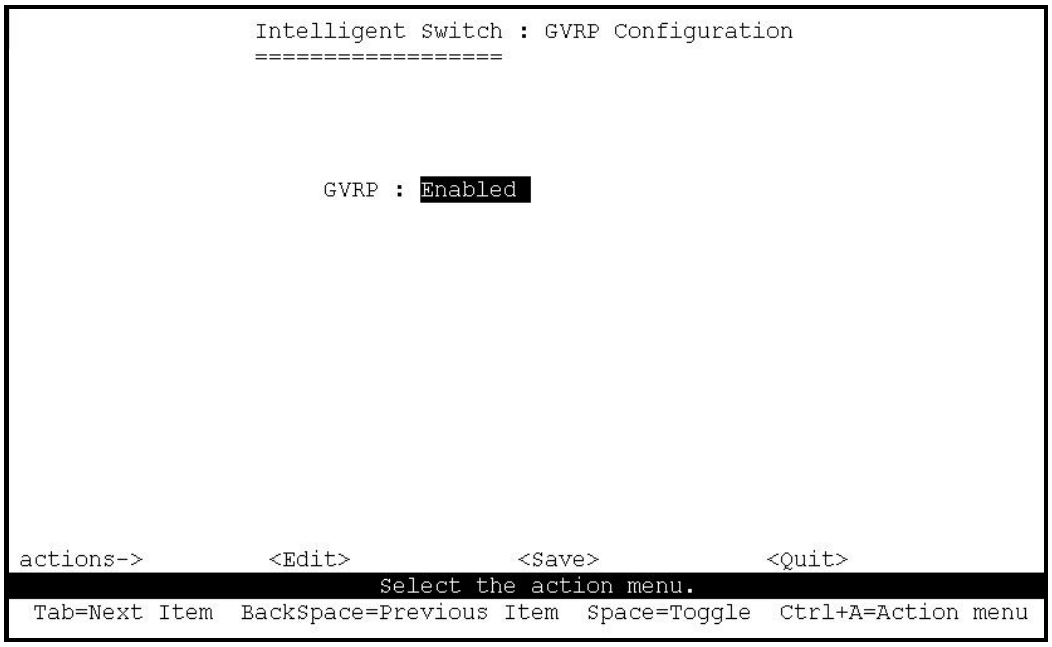

Intelligent Switch : Trap Managers Configuration
IP Community Name
192.168.1.234 public
actions-> <Add> <Edit> <Delete> <Quit>
Delete SNMP trap managers.
Tab=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

GVRP

GVRP (GARP [Generic Attribute Registration Protocol] VLAN Registration Protocol)
GVRP allows automatic VLAN configuration between the switch and nodes.

For example, if the switch is connected to a device with GVRP enabled, you can enable this setting to allow dynamic VLAN configuration information to be processed by the switch. If a device sends a GVRP request using the VID of a VLAN defined on the switch, the switch will automatically add that device to the existing VLAN.

This page you can enable / disable the GVRP (GARP VLAN Registration Protocol) support.


Intelligent Switch : GVRP Configuration
GVRP : Enabled
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Space=Toggle Ctrl+A=Action menu

- Select <Edit>.
- Press Space key to choose Enabled / Disabled.
- Press Ctrl+A back to action menu line.
- Select <Save> to save configure value.

Note: GVRP must also be enabled on participating network nodes.

IGMP

The Internet Group Management Protocol (IGMP) is an internal protocol of the Internet Protocol (IP) suite.

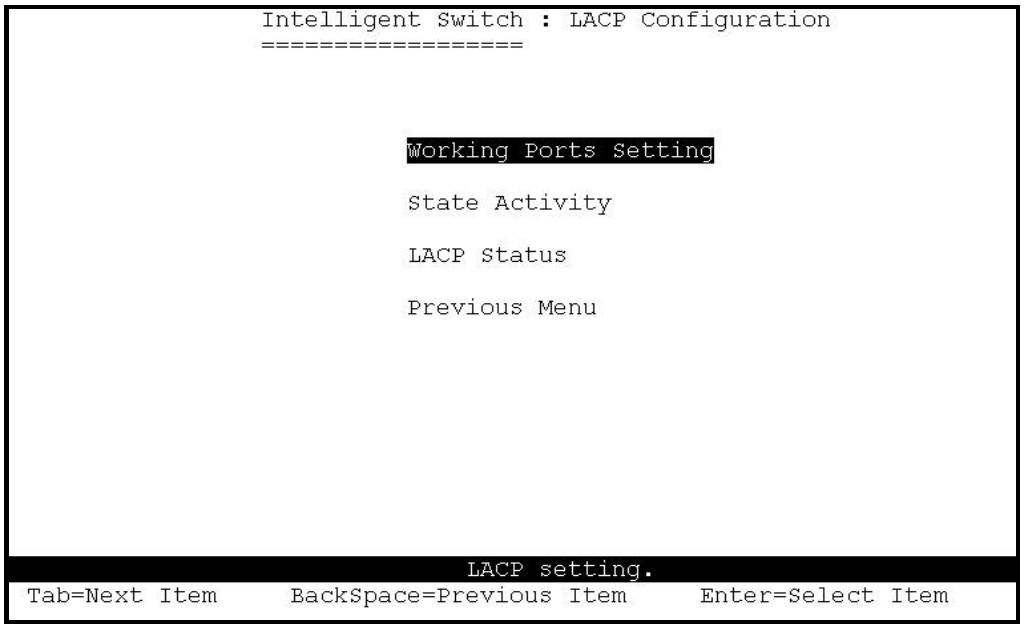
This page you can enable / disable the IGMP support.

Intelligent Switch : IGMP Configuration
IGMP : Enabled
actions-> <Edit> <Save> <Quit>
Select the action menu.
Tab=Next Item BackSpace=Previous Item Space=Toggle Ctrl+A=Action menu

- Select <Edit>.
- Press Space key to choose Enabled / Disabled.
- Press Ctrl+A go back action menu line.
- Select <Save> to save configure value.

LACP (Link Aggregation Control Protocol)

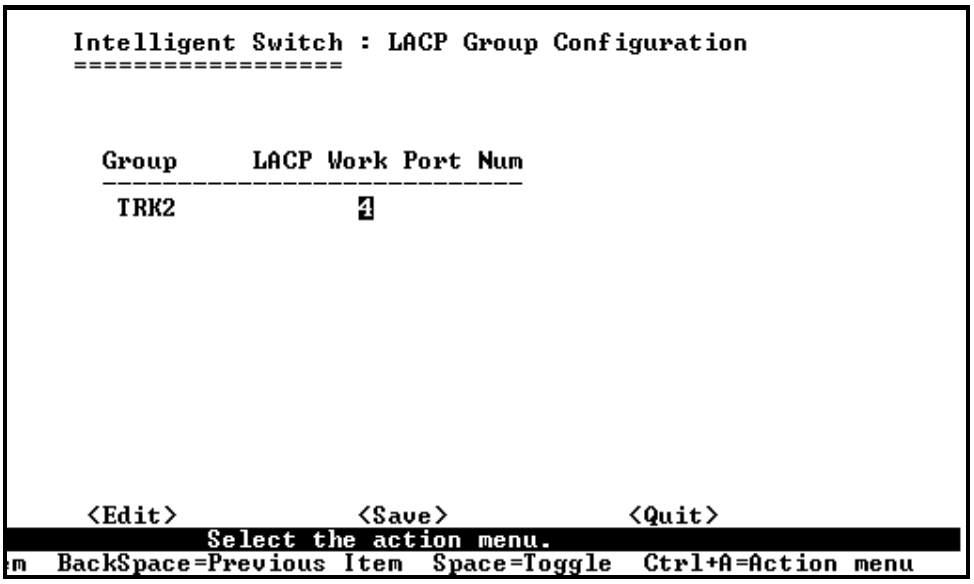
This page can configure and view all the LACP status.



Note: All ports support LACP dynamic trunking group. If connecting to the device that also supports LACP, the LACP dynamic trunking group will be created automatically.

Working Port Setting

This page can set the actually work ports in trunk group.


Intelligent Switch : LACP Group Configuration
Group LACP Work Port Num
TRK2 4
<Edit> <Save> <Quit>
Select the action menu.
BackSpace=Previous Item Space=Toggle Ctrl+A=Action menu

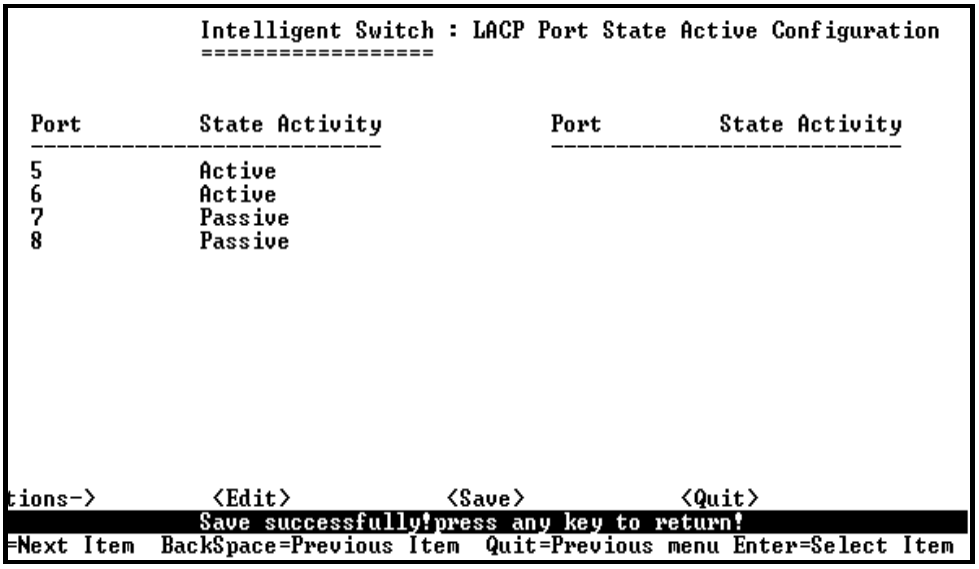
- Select <Edit>.
- Group: Display the trunk group ID.
- LACP: Display the trunk group's LACP status.
- LACP Work Port Num: The max number of ports can be aggregated at the same time. If LACP static trunking group, the exceed ports is standby and able to aggregate if work ports fail. If local static trunking group, the number must be the same as group ports.

NOTE: Before set this page, you have to set trunk group on the page of Trunk Configuration first.

State Activity

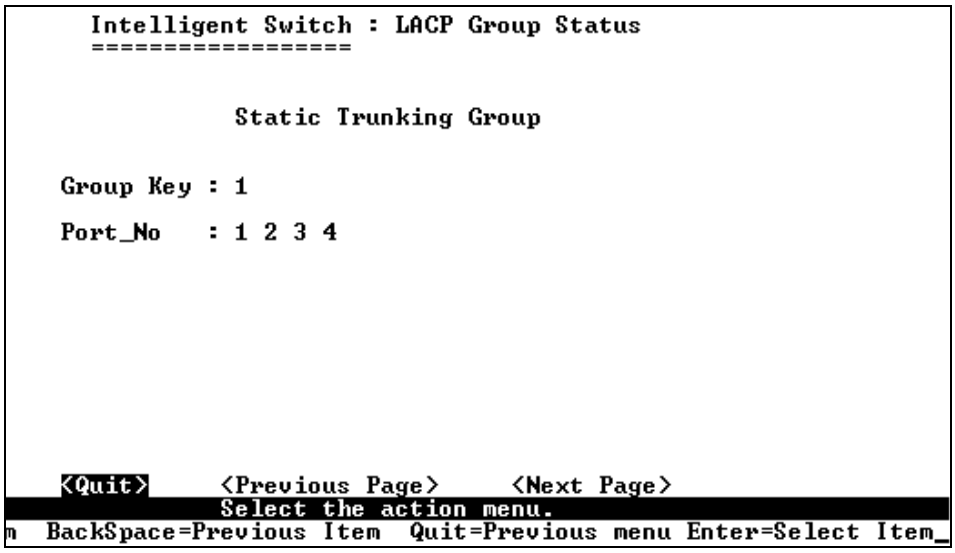
- Press <Edit>.
- System Name: Type a name to be used for the switch.
- System Contact: Type the name of contact person or organization.
- System Location: Type the location of the switch.
- Press Ctrl+A go back action menu line.
- Press <Save> to save the configure value.

NOTE: If user set LACP mode in the trunk group, all of the member ports of this trunk group will set "Active" automatic.



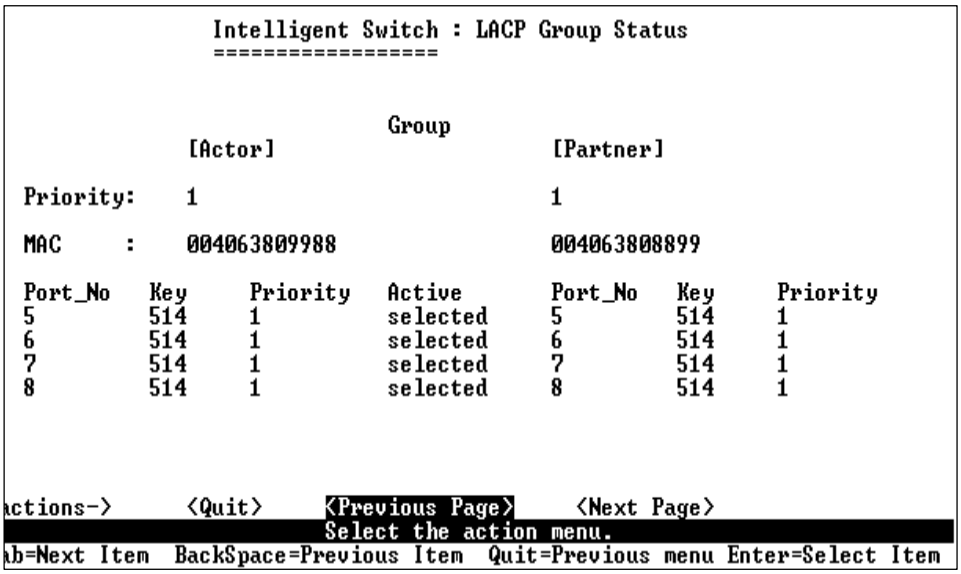
LACP Status

When you're setting trunking group, you can see the relational information here.
Static trunk group



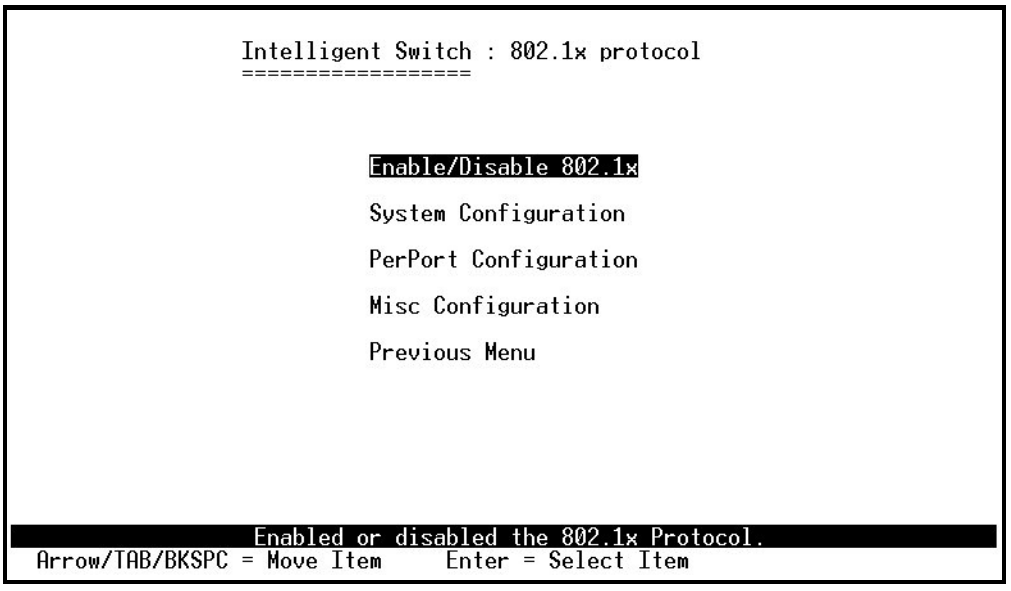
LACP trunk group

- <Quit>: Exit this page and return to previous menu.
- <Previous Page>: Return to previous page to view.
- <Next page>: Go to the next page to view.


Intelligent Switch : LACP Group Status
Group
[Actor]
[Partner]
Priority: 1 1
MAC : 004063809988 004063808899
Port_No Key Priority Active Port_No Key Priority
5 514 1 selected 5 514 1
6 514 1 selected 6 514 1
7 514 1 selected 7 514 1
8 514 1 selected 8 514 1
ctions-> <Quit> <Previous Page> <Next Page>
Select the action menu.
b=Next Item BackSpace=Previous Item Quit=Previous menu Enter=Select Item

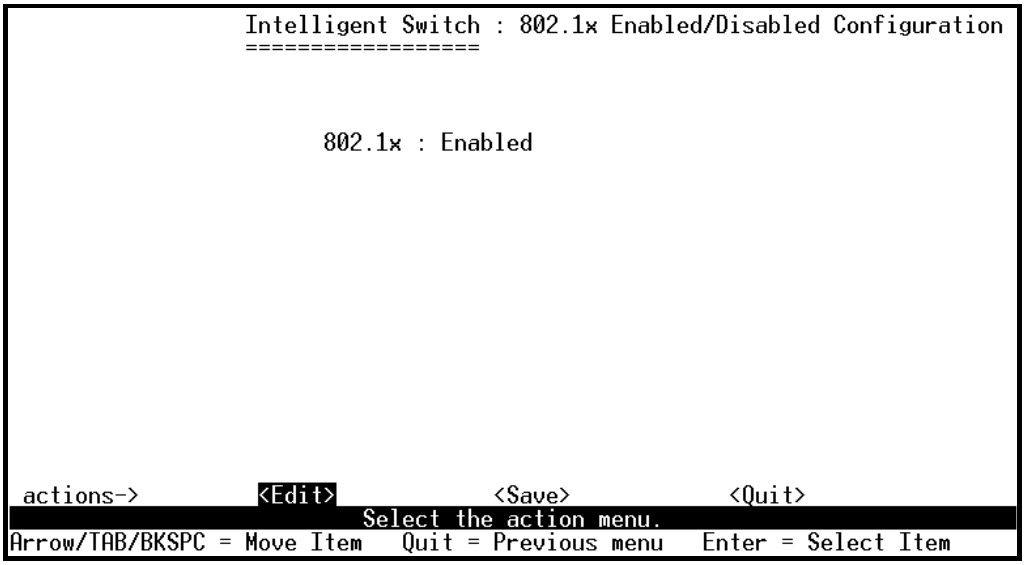
802.1x Protocol

This page can configure and view all the 802.1x status.

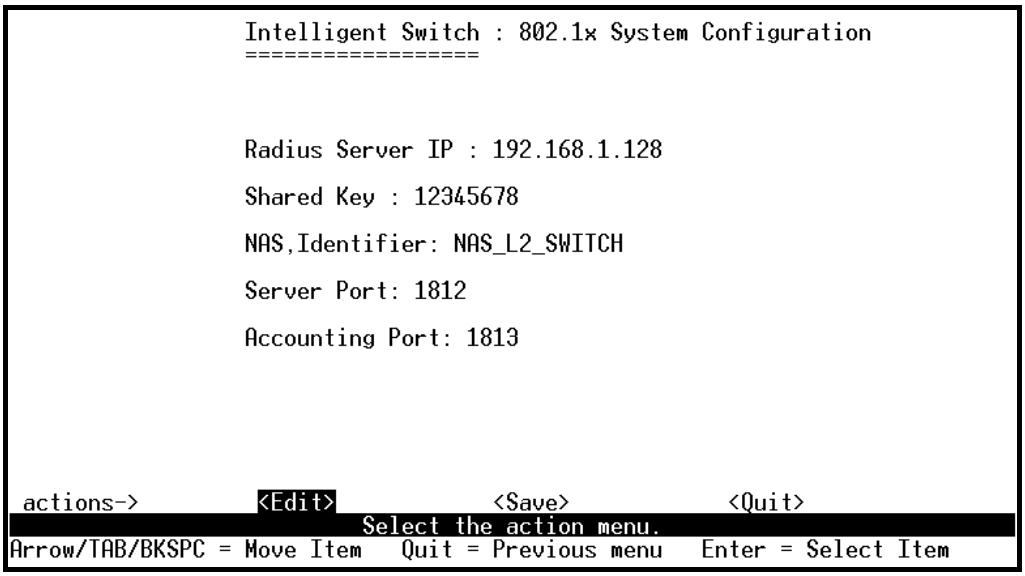


802.1x Enable

1.Select <Edit>.
2.Press Space key to choose Enabled / Disabled.
3.Press Ctrl+A go back action menu line.
4.Select <Save> to save configure value.


Intelligent Switch : 802.1x Enabled/Disabled Configuration
802.1x : Enabled
actions-> <Edit> <Save> <Quit>
Select the action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

802.1x System Configuration

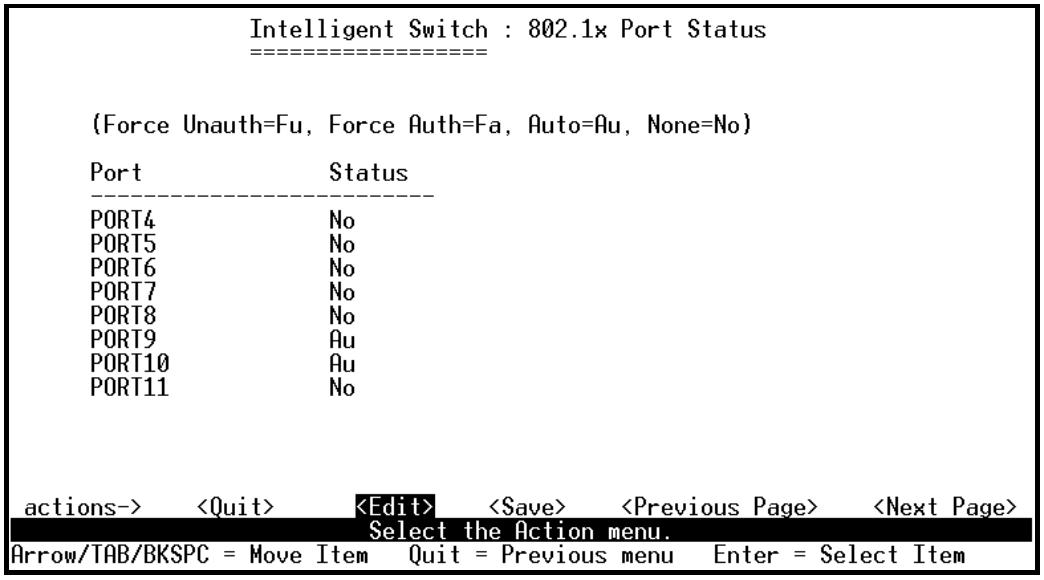

Intelligent Switch : 802.1x System Configuration
Radius Server IP : 192.168.1.128
Shared Key : 12345678
NAS,Identifier: NAS_L2_SWITCH
Server Port: 1812
Accounting Port: 1813
actions-> <Edit> <Save> <Quit>
Select the action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

1. Press <Edit>.
2. Radius Server IP Address: the IP address of the authentication server.
3. Shared Key: A key shared between this switch and authentication server.
4. NAS, Identifier: A string used to identify this switch.
5. Server Port: The UDP port number used by the authentication server to authenticate.
   6.Accounting Port: The UDP port number used by the authentication server to retrieve accounting information.

6. Press Ctrl+A go back action menu line.
7. Press <Save> to save configured value.

Note:
Fu：Force the specific port to be unauthorized.
Fa：Force the specific port to be authorized.
Au：The state of the specific port was determined by the outcome of the authentication.
No：The specific port didn't support 802.1x function.

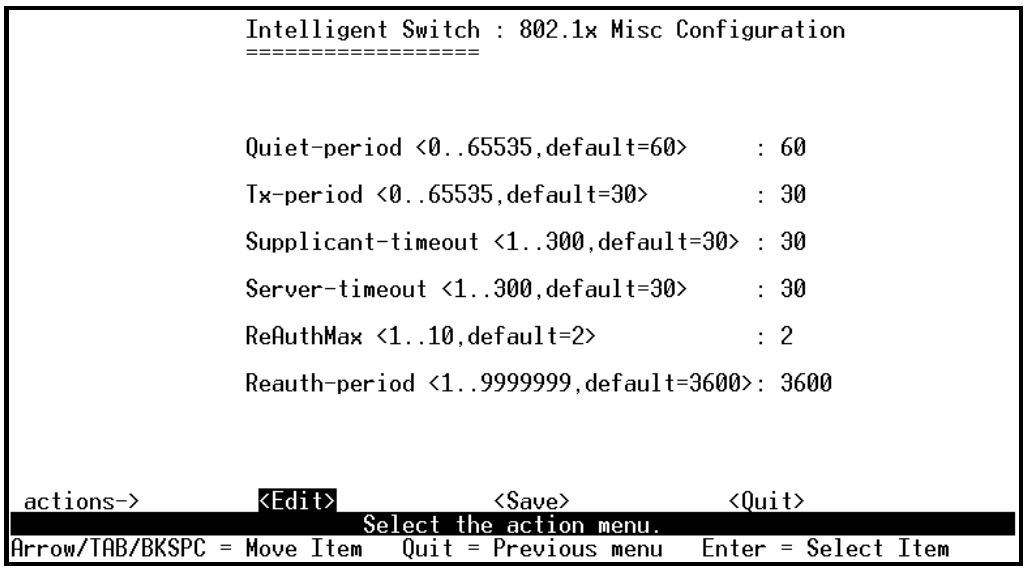
802.1x PerPort Configuration



In this page, set the authorization status to activate 802.1x function by port
Select <Edit>.
Status: Press <Space> key to choose Fu / Fa / Au / No authorization status.
Press Ctrl+A go back action menu line.
Select <Save> to save all configure value.

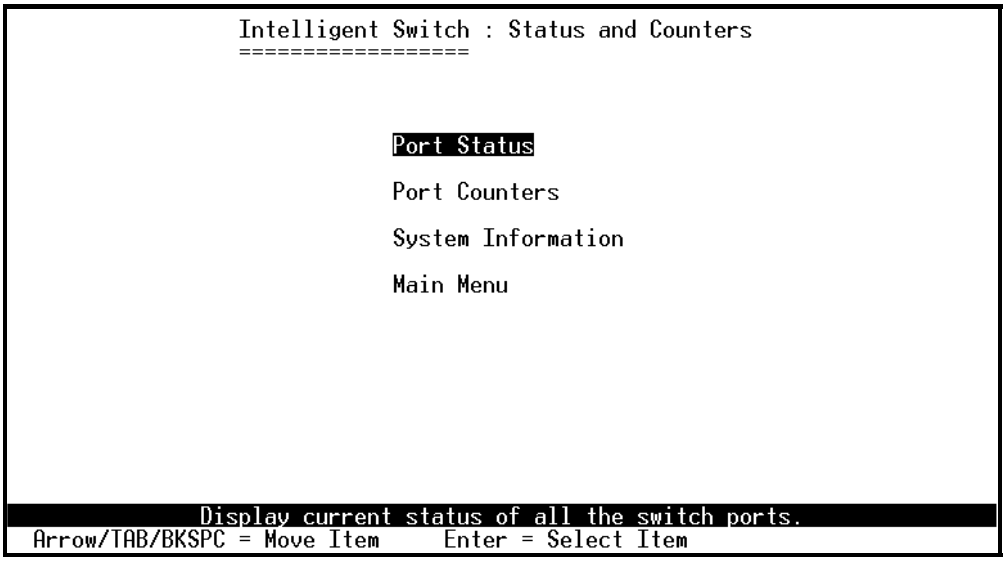
Note:
Fu：Force the specific port to be unauthorized.
Fa：Force the specific port to be authorized.
Au：The state of the specific port was determined by the outcome of the authentication.
No：The specific port didn't support 802.1x function.

802.1x Misc Configuration



- Quiet Period： Used to define periods of time during which it will not attempt to acquire a supplicant (Default time is 60 seconds).
- Tx Period：Used to determine when an EAPOL PDU is to be transmitted (Default value is 30 seconds).
- Supplicant Timeout： Used to determine timeout conditions in the exchanges between the supplicant and authentication server (Default value is 30 seconds).
- Server Timeout： Used to determine timeout conditions in the exchanges between the authenticator and authentication server (Default value is 30 seconds).
- ReAuthMax：Used to determine the number of re-authentication attempts that are permitted before the specific port becomes unauthorized (Default value is 2 times).
- Reauth Period： Used to determine a nonzero number of seconds between periodic re-authentication of the supplications (Default value is 3600 seconds).
- Press Ctrl+A go back action menu line.
- Press <Save> to save configuration value.

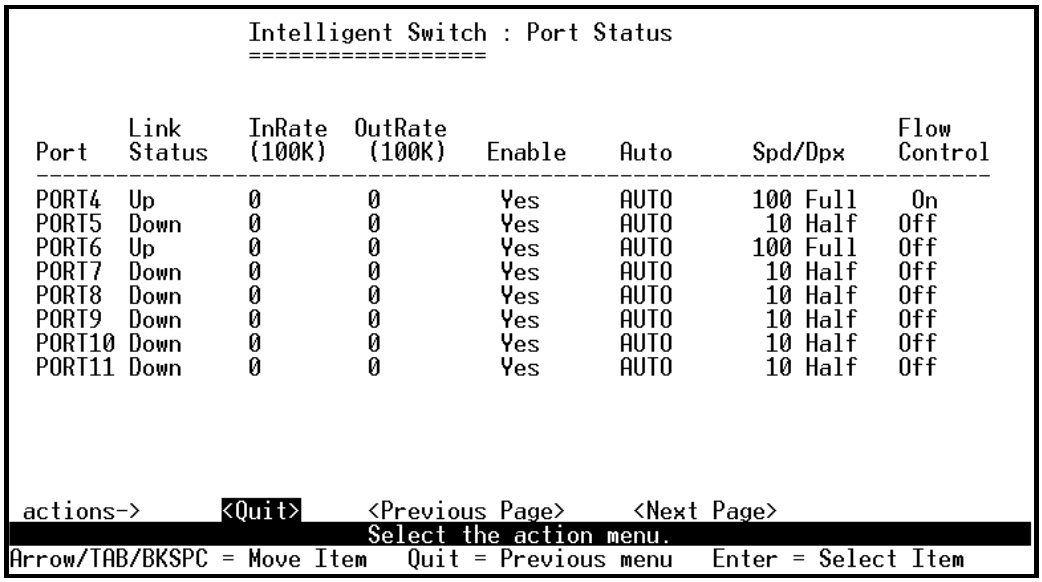
Status and Counters



You can press the key of Tab or Backspace to choose item, and press Enter key to select item.

Port Status

This page display every port status


Intelligent Switch : Port Status
Port Link Status InRate (100K) OutRate (100K) Enable Auto Spd/Dpx Flow Control
PORT4 Up 0 0 Yes AUTO 100 Full On
PORT5 Down 0 0 Yes AUTO 10 Half Off
PORT6 Up 0 0 Yes AUTO 100 Full Off
PORT7 Down 0 0 Yes AUTO 10 Half Off
PORT8 Down 0 0 Yes AUTO 10 Half Off
PORT9 Down 0 0 Yes AUTO 10 Half Off
PORT10 Down 0 0 Yes AUTO 10 Half Off
PORT11 Down 0 0 Yes AUTO 10 Half Off
actions-> <Quit> <Previous Page> <Next Page>
Select the action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

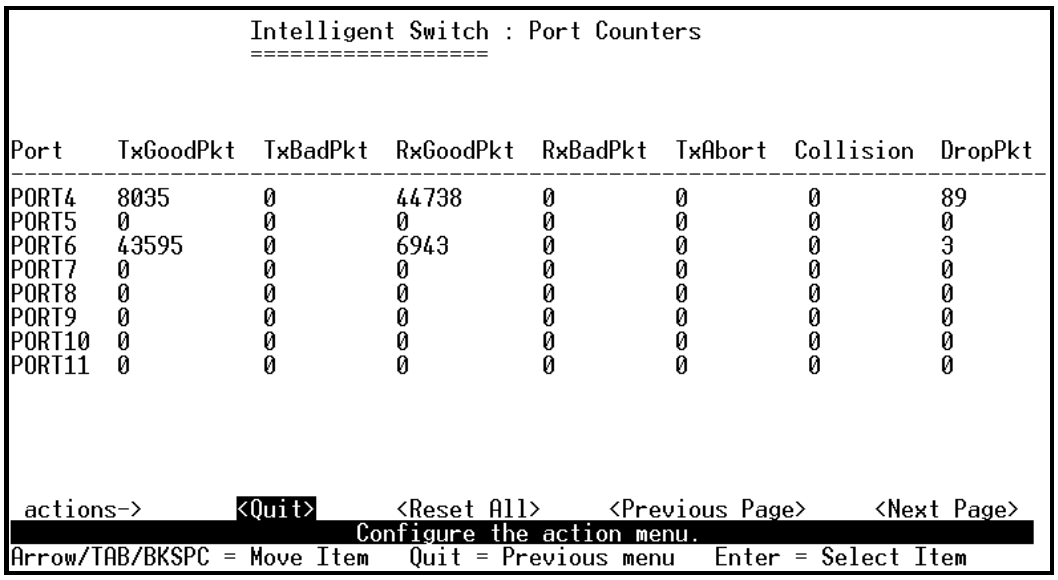
- Link Status: Display the port is link or no link.
- InRate: Display the input rate control (100K/unit) setting value.
- OutRate: Display the output rate control (100K/unit) setting value.
- Enabled: Display the port is enabled or disable depended on user setting. Enable will be display “Yes”, disable will be display “No”. If the port is unlink will be treated as “No”.

- Auto: Display the port is link on which Nway mode: Auto , Nway_Force , Force.
- Spd/Dpx: Display the port speed and duplex.
- FlowCtrl: In auto / Nway force mode, display the flow control status is enable or not after negotiation.
- In force mode, display the flow control status is enabled or disabled depending on user setting.

Actions
<Quit>: Exit the page of port status, and return to previous menu.
<Previous Page>: Display previous page.
<Next page>: Display next page.

Port Counters

The following information provides a view of the current status of the unit.

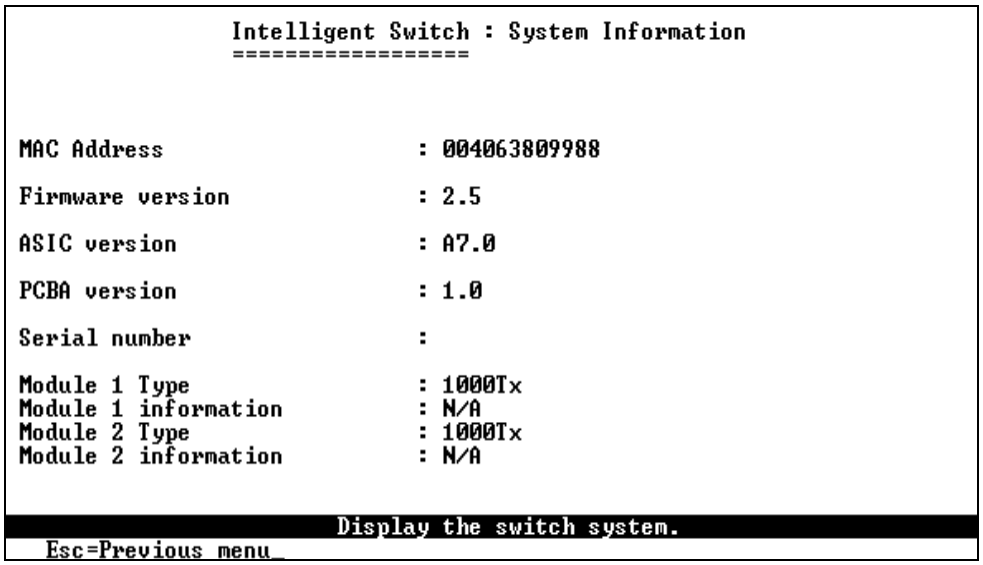


Actions->
<Quit>: Exit the page of port status, and return to previous menu.
<Reset All>: Set all count to 0.
<Previous Page>: Display previous page.
<Next page>: Display next page.

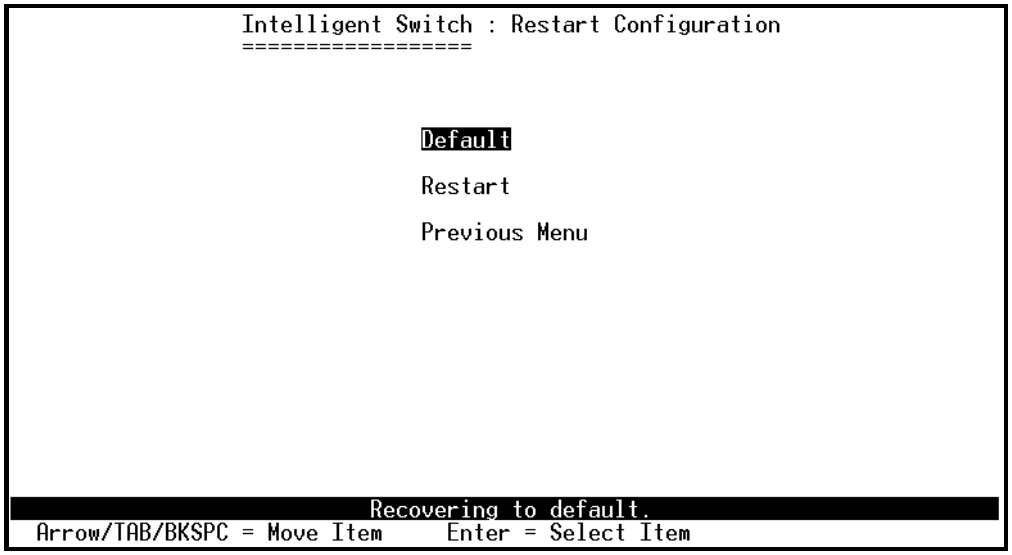
System Information

- MAC Address: The unique hardware address assigned by manufacturer.
- Firmware Version: Display the switch's firmware version.
- ASIC Version: Display the switch's Hardware version.
- PCBA version: Display the board number.
- Serial number: Display the serial number assigned by manufacturer.
- Module 1 Type: Display the module 1 type :1000Tx or 100Fx ext. Depend on module card mode.
- Module 1 information: Display the information saved in eeprom of module1.
- Module 2 Type: Display the module 2 type :1000Tx or 100Fx ext. Depend on module card mode.

- Module 2 information: Display the information saved in eeprom of module2.

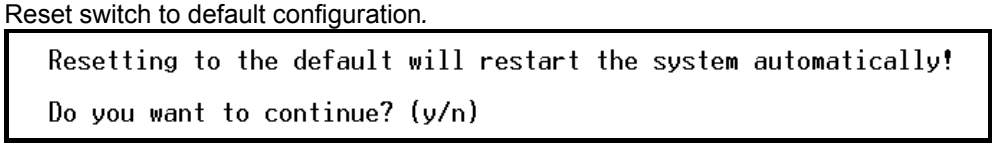

Intelligent Switch : System Information
MAC Address : 004063809988
Firmware version : 2.5
ASIC version : A7.0
PCBA version : 1.0
Serial number :
Module 1 Type : 1000Tx
Module 1 information : N/A
Module 2 Type : 1000Tx
Module 2 information : N/A
Display the switch system.
Esc=Previous menu_

Reboot Switch



Default

Reset switch to default configuration.

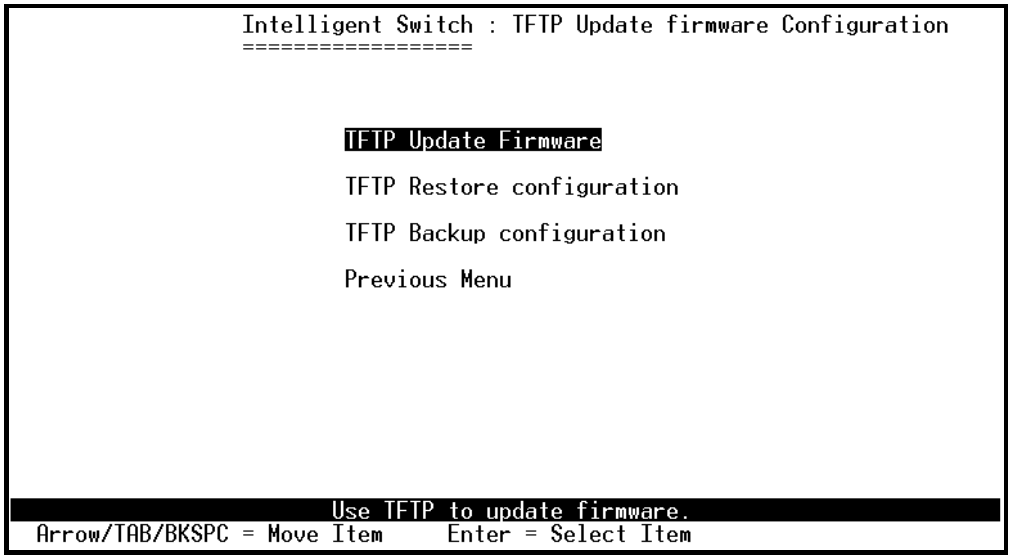


Restart

Reboot the switch in software reset.

TFTP Update Firmware

This page provide user to update firmware or restore EEPROM value or upload current EEPROM value.



TFTP Update Firmware

This page provides user use TFTP to update firmware.

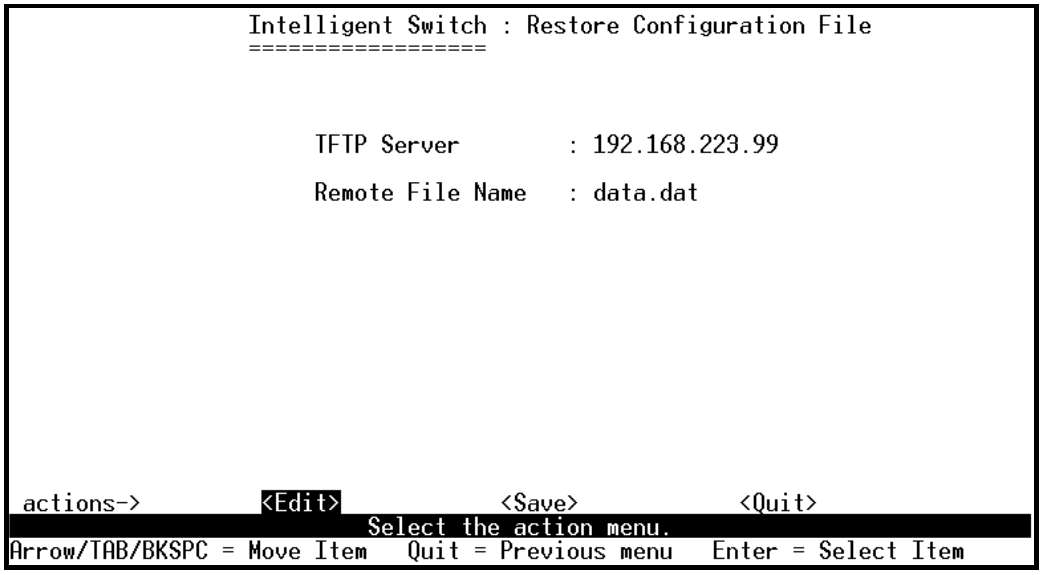
Intelligent Switch : TFTP Update Firmware
TFTP Server : 192.168.223.99
Remote File Name : image.bin
actions->
<Edit>
<Save>
<Quit>
Select the action menu.
Arrow/TAB/BKSPC = Move Item
Quit = Previous menu
Enter = Select Item

- Start the TFTP server, and copy firmware update version image file to TFTP server.
- Press <Edit> on this page.
- TFTP Server: Type the IP of TFTP server.
- Remote File Name: Type the image file name.
- Press Ctrl+A go to action line.
- Press <Save> key, it will start to download the image file.
- When save successfully, the image file download finished too.

- Restart switch.

Restore Configure File

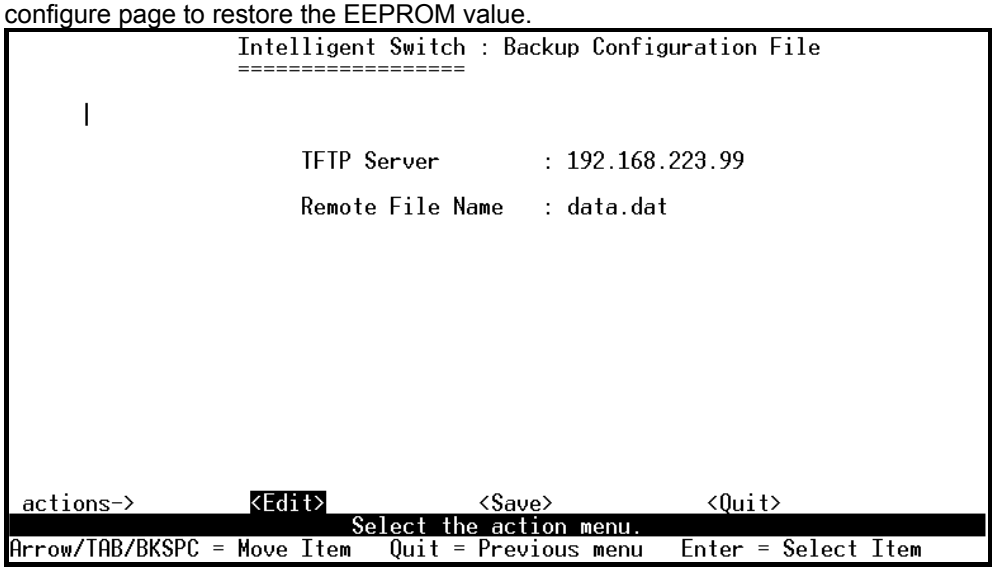
This page user can restore EEPROM value, save image file before, form TFTP server.


Intelligent Switch : Restore Configuration File
TFTP Server : 192.168.223.99
Remote File Name : data.dat
actions-> <Edit> <Save> <Quit>
Select the action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

- Start the TFTP server.
- Press <Edit> on this page.
- TFTP Server: Type the IP of TFTP server.
- Remote File Name: Type the image file name.
- Press Ctrl+A go to action line.
- Press <Save> key, it will start to download the image file.
- When save successfully, the image file download finished too.
- Restart switch.

Backup Configure File

This page user can save current EEPROM value to image file. Then go to the update configure page to restore the EEPROM value.


Intelligent Switch : Backup Configuration File
TFTP Server : 192.168.223.99
Remote File Name : data.dat
actions-> <Edit> <Save> <Quit>
Select the action menu.
Arrow/TAB/BKSPC = Move Item Quit = Previous menu Enter = Select Item

- Start the TFTP server.
- Press <Edit> on this page.
- TFTP Server: Type the IP of TFTP server.
- Remote File Name: Type the image file name.
- Press Ctrl+A go to action line.
- Press <Save> key, it will start to upload the image file.
- When save successfully, the image file upload finished too.
- Restart switch.

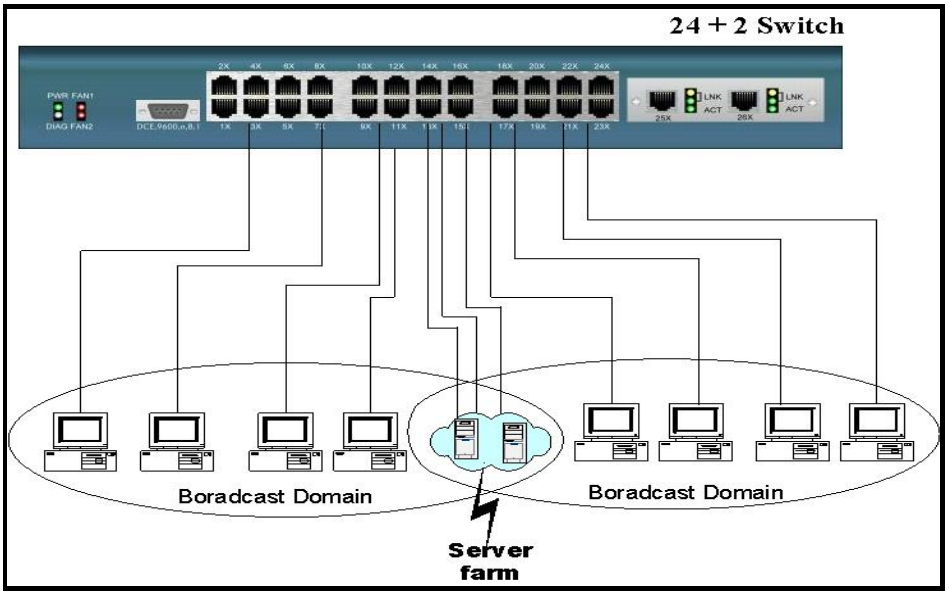
Application Examples

VLAN application used with switch

VLAN is a simple solution to protect your network against broadcast storming by creating segments based on Layer2 Ethernet information and avoiding the complexity and the heavy processing requirements of Layer3 IP based routers.

As a result, each group of stations connected to separate Segmented Ports forms different isolated Broadcast Domain. The Broadcast Sharing Ports should be used to connect servers and other common services, such as Internet access, that are used by all the stations connected to the different Segmented Ports.

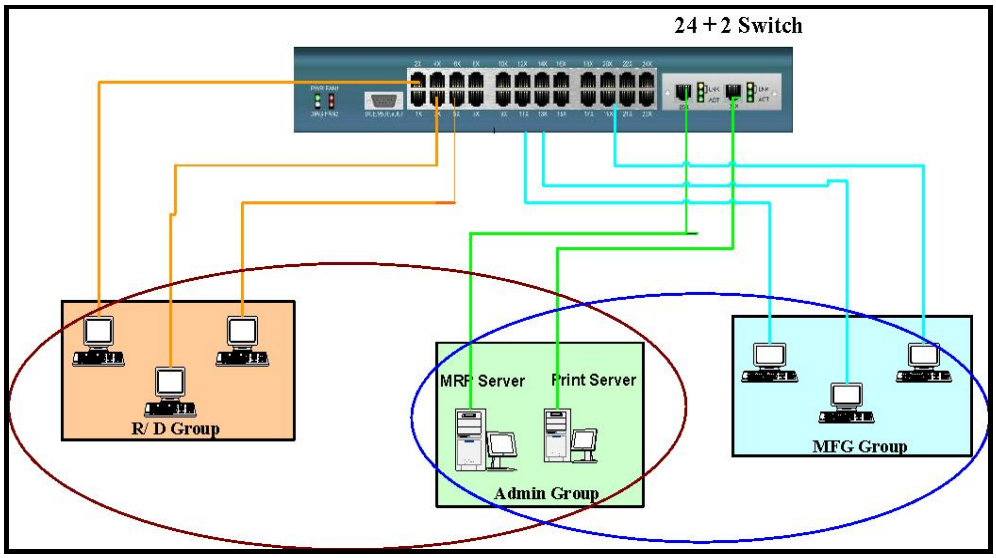
Virtual LAN, or VLAN, is generally defined as broadcast domain. It can be viewed as a group of end nodes, possibly on different physical network segments, which can communicate with each other



Benefit of VANs

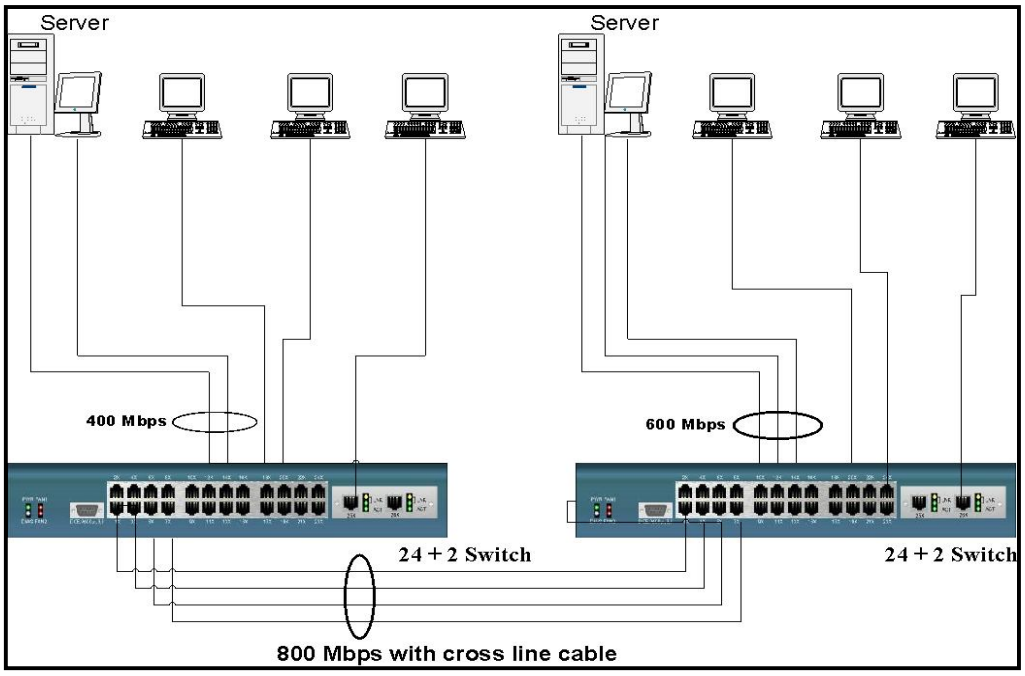
- Grouping users into logical networks for performance enhancement.
- Provides effective broadcasts containment between Segmented Ports, which prevents flooding of a network.
- Offers security by completely isolating from each other the different Broadcast Domains connected on separate Segmented Ports.
- Preserving current investment in equipment and cabling.
- Providing an easy, flexible, economic way to modify logical groups when needed.
- Network administrators can easily "fine tune" the network.
- Keeping network structure from the physical topology of the cabling.
- Making large networks more manageable.

You can group users according to some shared characteristic, such as a common business function or a common protocol. A single switch may have several independent VLANs within it. Below is a example that R&D, Manufacturing and Administration group can be partitioned into two different VLAN group, even members in different group can't talk directly, but they still share the same server, such as MRP server, printer server in Administration group…etc.



Trunking Application used with switch

Trucking allows you to increase the available bandwidth between switches by grouping ports into a trunk. Trunk can also be used to connect server to switches for higher bandwidth service required. You can use trucking to improve the throughput between segments. Moreover, this switch further provides trunk with fail-over function, that is, when one of the links of trunk is fail or broken, the traffic originally go through that link will be automatically re-direct to other links of trunk, this give the trunk with redundancy and greatly increase the value of trucking



Single IP – Agent mode" application used with switch

Single IP is a management utility of network devices for administrator to access private IP devices through a single IP (real IP or private IP). By this utility, administrator can manage much more network devices than ever and reduce the demand of real IPs, because every real IP switch can be an agent host for any network devices in their private IP domain.

There are some defects in the current solutions of network management. For example, switches with legacy "stack" capability have to stack together due to their special limited-length cables, and have the limitation of stacking quantities and brand compatibility due to hardware specification. Moreover, administrator always has troubles in finding out the target window among those multi-display interfaces. Though there are expert network management utilities available in the current market, like HP OpenView, expensive cost and difficult task of implementation into embedded system are main drawbacks for their practical application.

Because of the rapid development of Ethernet, the scare of real IP shortage becomes a serious issue when an enterprise continues its IA growth. It is a resource waste and cost a large expense that every individual host has its own real IP inside the enterprise's network. Privates IPs and NAT function (provided by router, gateway or IP sharing) provide a solution to the shortage of real IP, but new issue gives rise to that remote user from internet has no access permission into the private IP domain, thus an administrator has no choose but accesses the private IP devices from the very location of the local area network to trouble shoot any problems that network clients report, until now "Single IP-Agent mode", one of this switch special features, provides a new solution for all issues above.

There are benefits of "Single IP-Agent mode":

Reduce the demand of real IP (public IP).
Since there are up to 32 devices which have a IP agent as "Single IP" switch, meaning that the switch becomes a network agent and handles all functions of these devices , MIS can reduce the number of hosts that are directly connected to internet, and make use the saved real IPs more efficiency.

Integrate network devices without modifying hardware or software.
"Single IP" is a technique mainly based on application layer in OSI standard. The connection between master and slave hosts is linked by Ethernet protocol. It is little concern of hardware and packet transmits. Modifications of hardware or software of the slave hosts are not necessary. Thanks to the characteristics, single IP switch gives the best compatibility with other network devices, router, gateway, web server and even another brand switch.

Handy User interface without learning complex setting or changing user's habit of operation.
A floating menu gives a comprehensive user interface for administrator to pick the managed devices. It provides host IP and host name in the same time, saving the trouble that the administrator tries to remember which IPs those slave hosts are assigned to. Since there is only one browse windows displaying on the screen in the same time, agent manager play a role like as TV channel controller. Administrator can easily switch to the device he wants and enter the setting webpage as he did before.

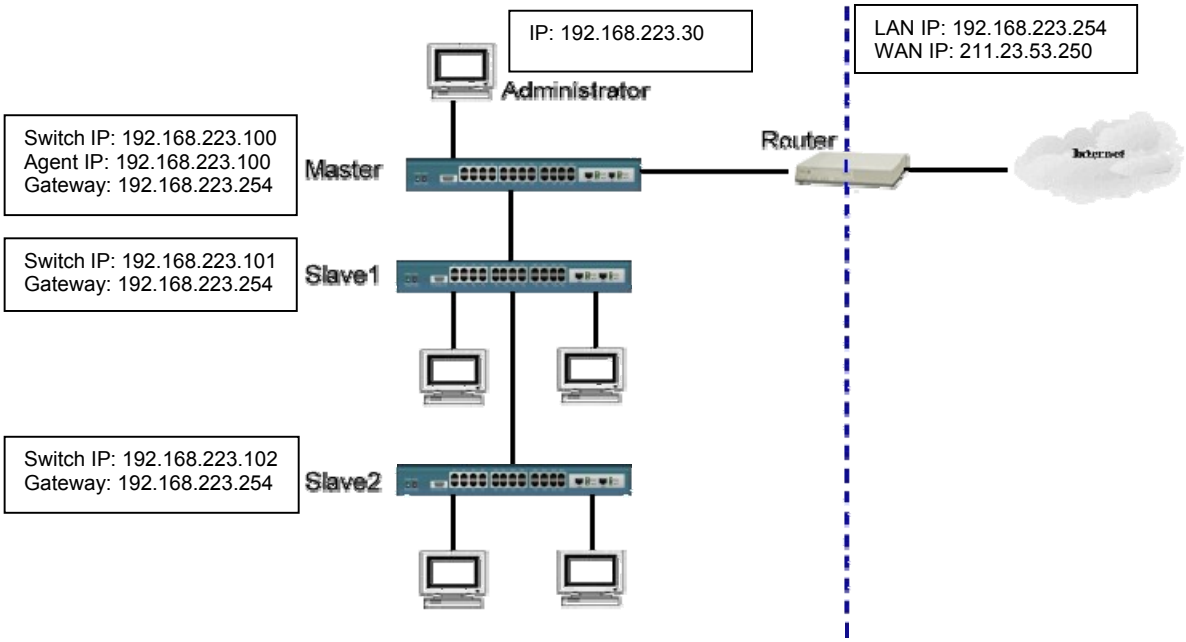
Totally remote control of network devices in private IP domain.
It is not necessary for MIS to put all devices together in one place. Single IP function will operate normally no matter how far the distance is between the master and the slave hosts if their packets can reach each other in local area network. Moreover, a remote administrator can access the far-side servers in the private domain through the intermediary of single IP switch which is directly connected to internet.

No up-link limitation through Gigabit port.
Unlike stacking mode, up-link in agent mode can be achieved through any port rather than Gigabit port only. This provides great flexibility as long as network administrator can access them, and hence Gigabit ports can be saved for other applications.

Typical setup of “Single IP-Agent mode” network:

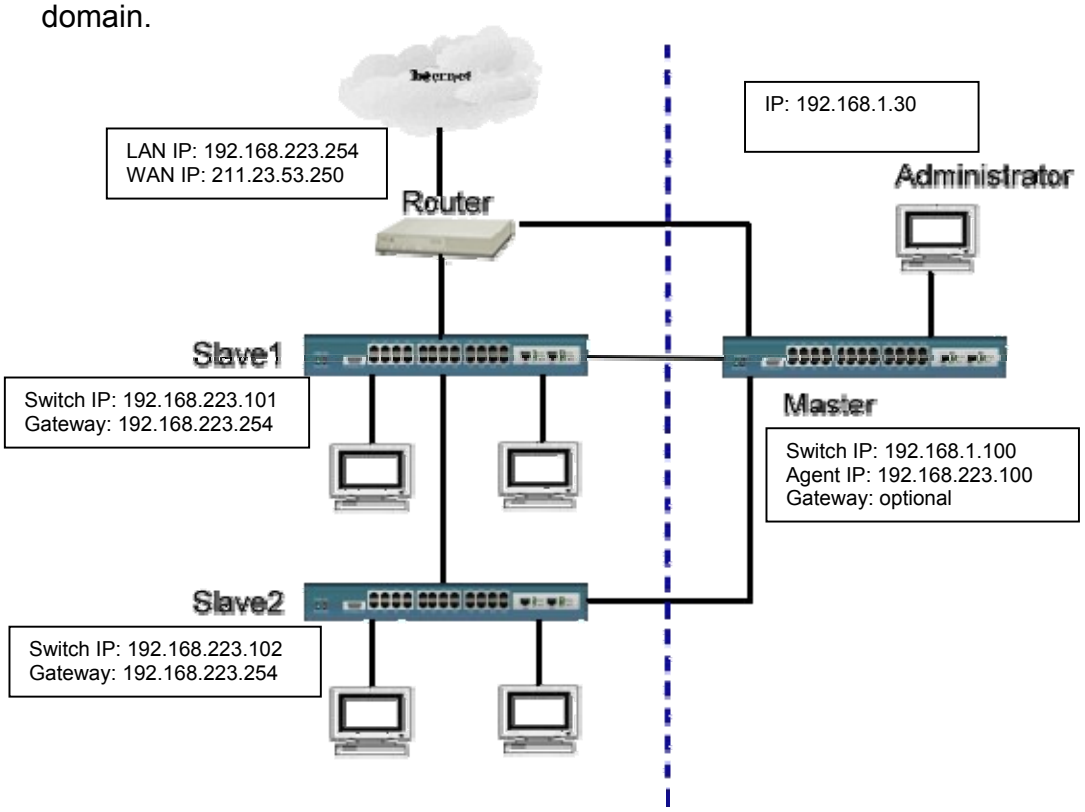
The basic rules to set up “Single IP”:
The “Agent IP” of master switch should be within the IP domain of the managed hosts. (slave switches)
The “Agent IP” should be the same as “Switch IP” if administrator is within the IP domain of slaves; In other hand, the “Agent IP” should be different from “Switch IP” if administrator want to manage the slaves cross IP domain.
There are three typical examples to demonstrate the usage of “Single IP-Agent mode”.

Master and slave switches in the same LAN domain.
In this example, master switch will manage 2 slave switches and 1 router.
Switch IP of master is 192.168.223.100. Set its management mode to “Agent Master”.
Since the IP domain of slaves and router are in the IP domain 192.168.223.0, Agent IP of master should be set as same as switch IP (192.168.223.100).
Add slave1 and slave2 into agent list by auto-discover or by manual. Router can only be added by manual. Administrator (192.168.223.30) can access those slaves through master



2. Master and slave switches in different LAN domain.

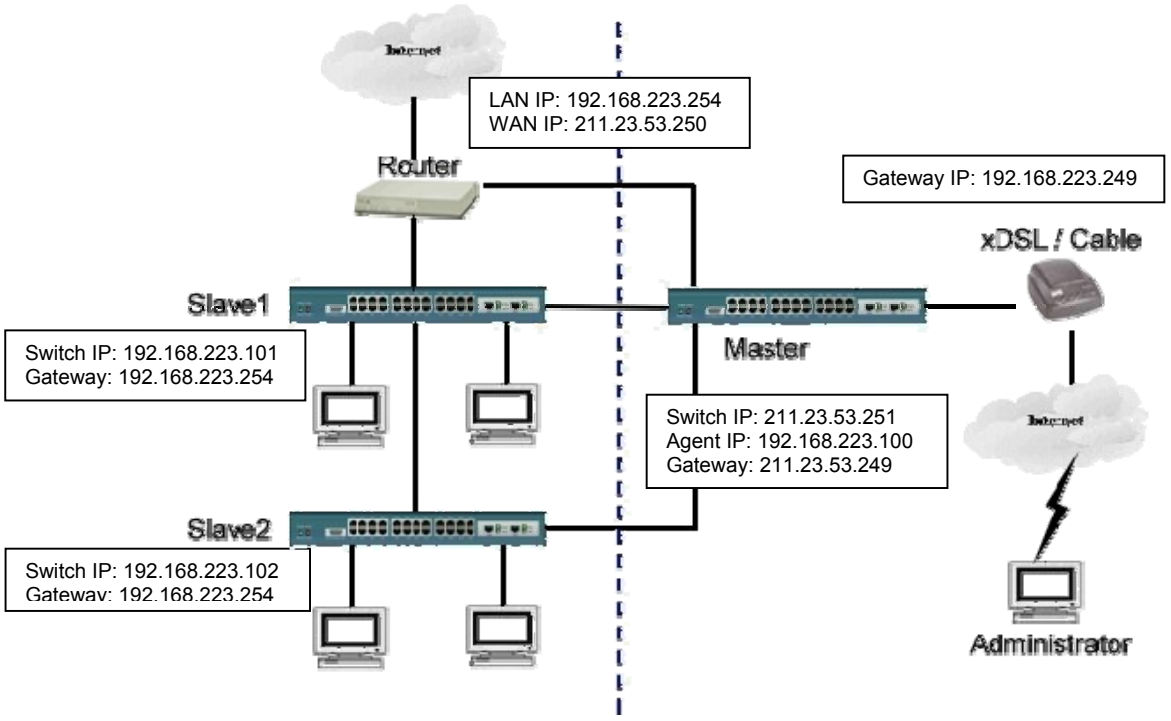
In this example, master will manage 2 slave switches and 1 router in other IP domain.



The differences from example1 are that administrator and master switch IP are in the other IP domain (192.168.1.0).
Switch IP of master is 192.168.1.100. Set its management mode to “Agent Master”.
According to the basic rule 1, agent IP should be set in the same domain of slaves, that is, 192.168.223.100. The other procedures are the same as example 1.
Now administrator (192.168.1.30) can access the slaves in other domain (192.168.223.0).

Master in WAN domain and slaves in LAN domain.

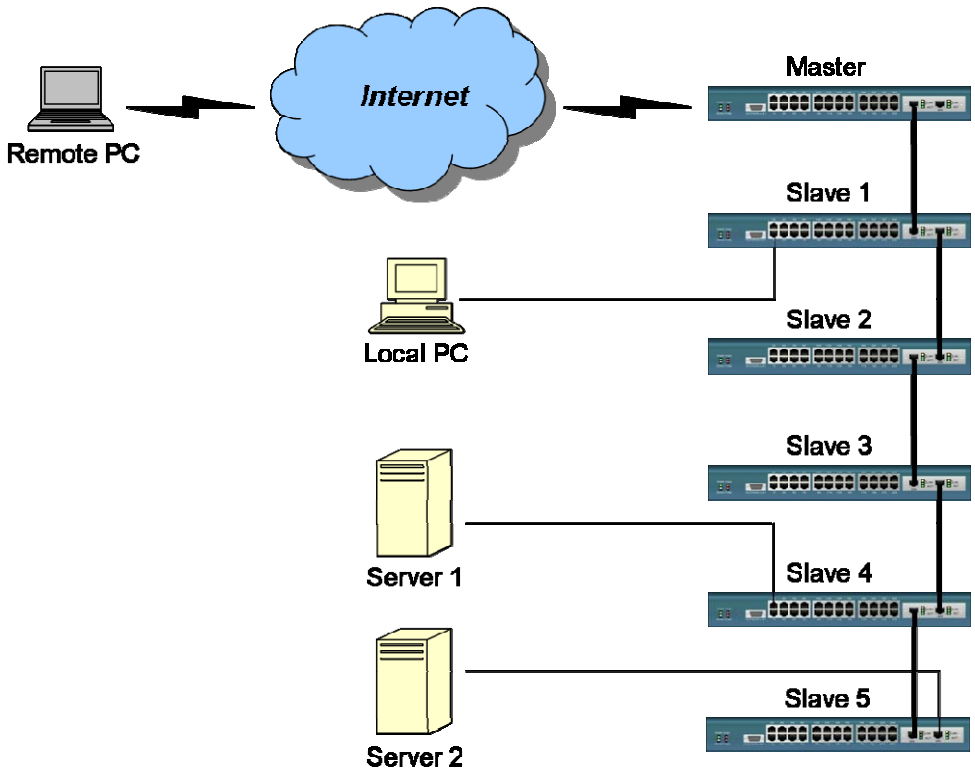
This example gives the practice application for remote management.
The differences from example 2 are that master switch links directly to internet and administrator from worldwide can access it through internet.
Set the Switch IP and gateway of master switch to real IP (211.23.53.251 and 211.23.53.249) and make sure administrator can access the master switch from internet.
The other procedures are the same as example 1.
Now administrator from internet can access the slaves in other domain (192.168.223.0).
Somewhat we can image the master is playing a role of tiny virtual server for these slaves.



“Single IP - Stacking mode” application used with switch used with switch

This switch provides traditional stacking mode to stack with maximum 16 switches by **cascading their Gigabit ports**. This feature helps network administrator to easily use one switch assigned as the master to manage the other stacked switches through the browser. That is, the master can bring a “global view” showing all stacked devices to network administrator as long as he/she accessed to the master switch by using its IP (this IP should be public for remote access through the internet). This will easily let the network administrator know the group settings (e.g. tag-based VLAN groups) and link status among all stacked units. A typical arrangement of network connection of “Single IP – Stacking mode” is shown below:

Typical connections for switch management by stacking



The significant characteristics of this switch are:

1. **No redundant hardware required:**
   Unlike special requirement of connecting cable among “hardware stacking” switches, this switch provides the least demand as a Gigabit module to build up a stacking set. The Gigabit module give the best performance for inter-communication between stacking switches and the administrator can spare one port of Gigabit module in the top switch or the bottom one in the stack for flexible usage.
2. **Well integrated UI to view status of stacking switches:**
   An user-friendly Web UI provides user to have a total view of the port link status and VLAN group settings for all stacked switches *at a glance*.
3. **Easy adding or removal stacking member:**
   All Stacking members can be easily added or removed through the network. By clicking on the UI, the administrator can quickly determinate which switch will join the stack, without adjusting the network connection in front of those switches. It saves great efforts when trouble-shooting the network abnormality.

A guide to build up “Stacking Switches”

Follow these steps to build up a set of “Stacking Switches”:

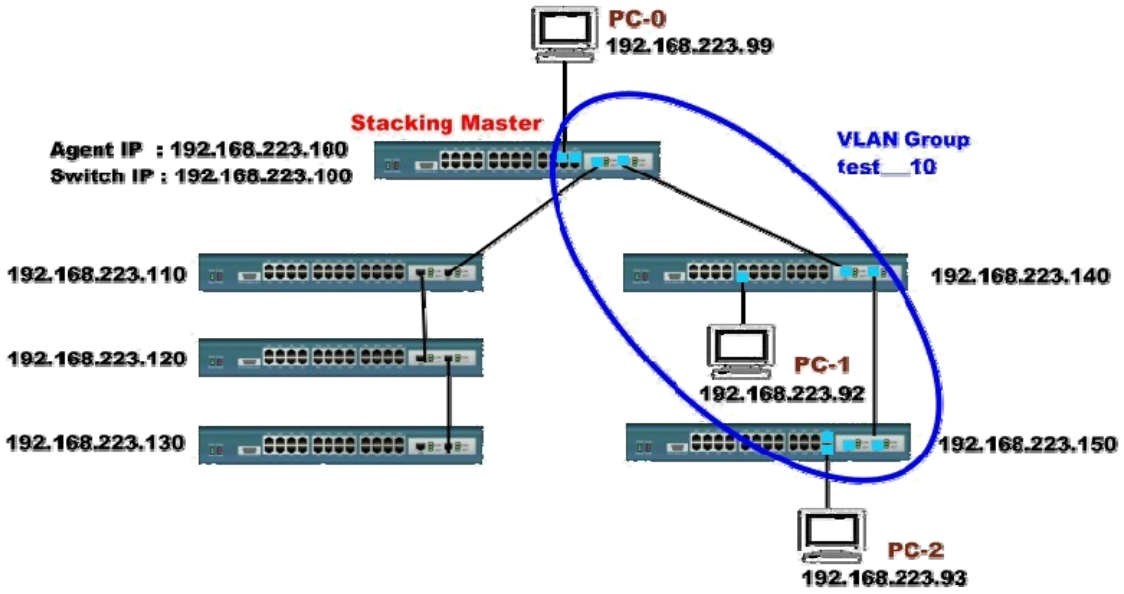
1. **Connect switches with Giga port in serial sequence.**
   By reference to the picture of typical network connection of “Single IP – Stacking mode”, user can connect these stacking switches with Giga port in serial sequence.
   A connection check by pinging these switches’ IP will help to avoid network failure.

2. **Make sure the master switch is set to “Stacking Master” and slaves to “Stacking Slave”.**
   In the Main Menu in “Administrator/IP & Management Mode”, user has to set the management mode to “Stacking Master” and slave switches to “Stacking Slave”.
   User, who wishes to access the stacking switches from remote IP, should fill up the switch IP with its real IP and the agent IP with the alternative LAN IP; In other hand, for a local area network access only, the switch IP and agent IP should be kept as the same as the LAN IP exactly.

3. **Add stacking members in the Stacking management.**
   Please refer section 2-4-14 for detailed configuration.

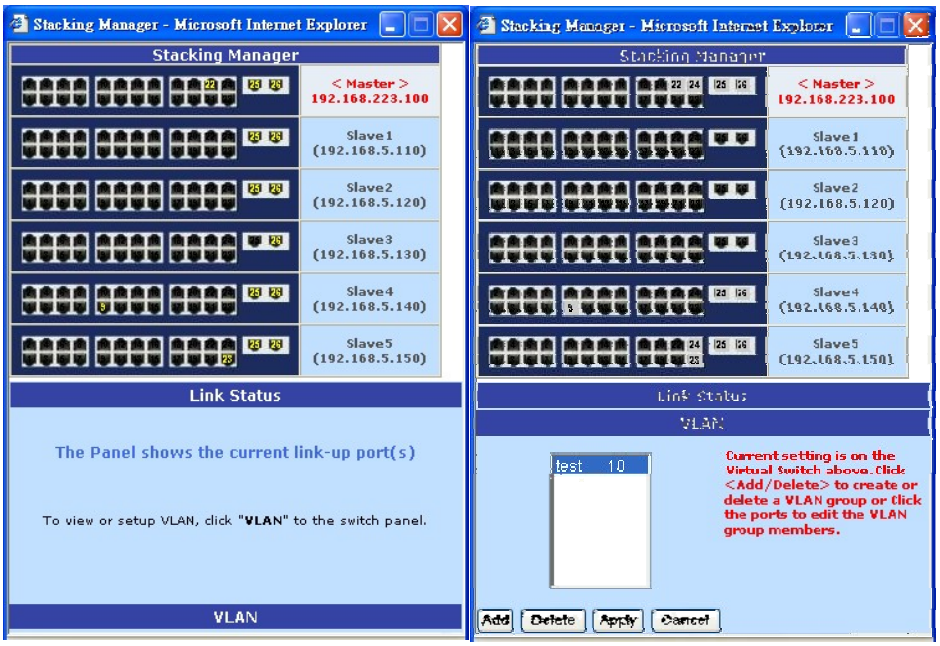
4. **Launch the Stack manager.**

An Example of Port-Base Stacking VLAN



Port-Base Stacking VLAN setting:
Switch: Master (192.168.223.100)
Slaves (192.168.223.110, 192.168.223.120, 192.168.223.130, 192.168.223.140, 192.168.223.150)
PC: PC-0(192.168.223.99) on port 22 of Master (192.168.223.100)
PC-1(192.168.223.92) on port 9 of Slave 4(192.168.223.140)
PC-2(192.168.223.93) on port 23 of Slave 5(192.168.223.150)
Port-Base VLAN Group:
VLAN name: test
VLAN ID: 10
Members: Port 22, 24 of Master (192.168.223.100)
Port 9 of Slave4 (192.168.223.140)
Port 23, 24 of Slave5 (192.168.223.150)

Test case:
1. PC-0 ping or trace PC-01 and PC-02 (The same VLAN)
2. Remove port 9 of Slave4 from VLAN test, and process test1 again.

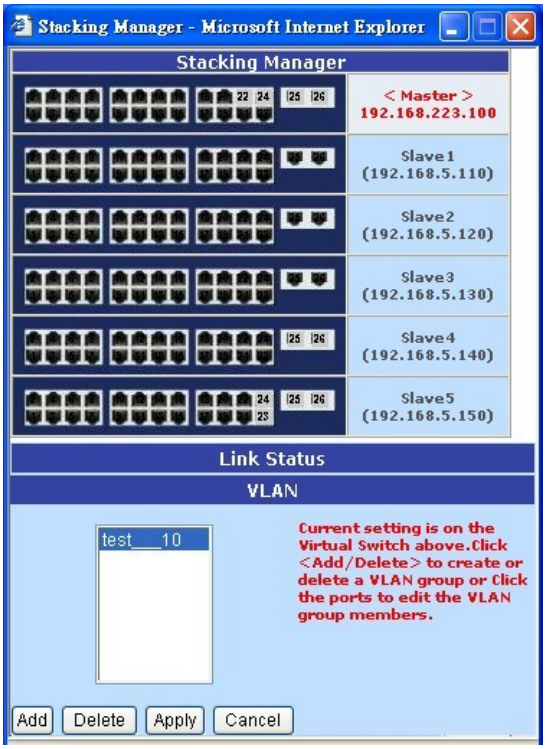


Result:
1. PC-0 can access both PC-01 and PC-02.

```
C:\Documents and Settings\Administrator>tracert 192.168.223.92

Tracing route to 192.168.223.92 over a maximum of 30 hops

  1    <1 ms    <1 ms    <1 ms  192.168.223.92
```

```
C:\Documents and Settings\Administrator>tracert 192.168.223.93

Tracing route to 192.168.223.93 over a maximum of 30 hops

  1    <1 ms    <1 ms    <1 ms  192.168.223.93
```

2. PC-0 can only access PC-02 only. PC-01 will not reply




```
C:\Documents and Settings\Administrator>tracert 192.168.223.92

Tracing route to 192.168.223.92 over a maximum of 30 hops

  1     *        *        *     Request timed out.
  2     *        *        *     Request timed out.
  3     *        *        *     Request timed out.
```

```
C:\Documents and Settings\Administrator>tracert 192.168.223.93

Tracing route to 192.168.223.93 over a maximum of 30 hops

  1    <1 ms    <1 ms    <1 ms  192.168.223.93
```

Appendix A Product Specifications

- **Hardware**
  - 24 x 10/100Base-TX Nway, auto-sensing ports
  - Auto MDI/MDI-X to eliminate needs for cross-over cabling
  - Single Module Slot for optional
    - 1-port or 2-port 1000Base-T(copper), 1000Base-SX(Fiber), 1000Base-LX(Fiber) Gigabit modules
    - 1-port or 2-port 100Base-FX Fiber Modules
    - 2-slot Mini-GBIC module
  - RS-232 Console Port for out-of-band management
  - 3M bit packet buffer and 1M bit control buffer
  - Up to 14K MAC entries and 4K VLAN entries
  - Dual fans for extra cooling
  - LEDs:
    - Power, Diag, FAN1, FAN2
    - Port LEDs (LINK/ACT on the left, 100M on the right) built adjacent to the sides of each port
  - 19" inch rack mountable
- **Standard Compliance**
  - IEEE 802.3 10BaseT Ethernet
  - IEEE 802.3u 100BaseTX Fast Ethernet
  - IEEE 802.3ab 1000Base-T Gigabit Ethernet over Cat.5 cable
  - IEEE 802.3z 1000BaseSX/LX Fiber Gigabit Ethernet
  - IEEE 802.3x flow control
  - IEEE 802.1d Spanning Tree

- IEEE 802.1p Priority Control
- IEEE 802.1q Tag VLAN
- IEEE 802.3ad Link Aggregation
- IEEE 802.1v Protocol Based VLAN classification
- RFC1213(RMON groups 1, 2, 3, 9), RFC1493 (Bridge MIB), and RFC1643(Ether-Like MIB)

- **Management Interface**
  - Web
  - SNMP Management Software
  - Telnet
  - RS-232 Console Port (out of band)

- **Management Functions**
  - Flow control for both half- or full-duplex operation
  - Head-of-Line blocking prevention
  - broadcast storm filtering
  - Port Status
    - On/Off, Link, Auto Negotiation, Speed, Duplex, Flow Control, Ingress/Egress, Priority, Security
  - Port Traffic Statistics
    - Tx Good Packets, Rx Good Packets, Tx Bad Packets, Rx Bad Packets, Tx Abort, Collision, Drop Packets
  - VLAN
    - Port-based VLAN
    - 802.1Q tag- VLAN with both IVL and SVL Support
    - 802.1v protocol-based VLAN classification
      - Supporting Protocols: IP, ARP, AppleTalk, AppleTalk AARP, Novell IPX, Banyan Vines, DECnet MOP, DECnet DPR, DECnet, LAT, DECnet LAVC, IBM SNA, X.75 Internet, X.25 Layer 3
    - GVRP Auto VLAN Configuration
  - IP Multicast

- IGMP
- Support 802.1p 2-level priority queuing
- Port-Trunking
  - flexible load distribution control and fail-over functions
  - Provide 7 trunk groups of up to 4 member ports within 26 ports
  - LACP Trunking
- Ingress port security mode
- RMON group 1,2,3,9
- Auto Aging Control
- Port Sniffer Function
- MAC Address Control
  - Static MAC Address list to speed up MAC Address learning
  - Filter MAC Address List to drop traffic from certain stations
- SNMP Trap Manager
- Security Manager
- Firmware update through TFTP or Xmodem

- **Power**
  - Built-in Power Supply
  - Input: 90-260VAC, 50/60Hz
  - Consumption: 36 Watts max.
- **Dimension**
  - 440mm (W) X 184mm (D) X 44mm (H)
- **Weight**
  - 2 KG
- **Regulation**
  - FCC Part 15 Class A
  - CE mark, Class A

Appendix B Troubleshooting

This appendix contains specific information to help you identify and solve problems. If your switch does not function properly, please make sure it is set up according to the instructions on the manual.
If you suspect your switch is not connected correctly to your network, check the following points before you contact your local dealer for support.

- Make sure the Power is ON (Check the Power LED).
- Make sure the cable is connected properly on both ends.
- Make sure that the maximum cable length between switch and end node does not exceed 100 meters (for 10/100/1000BASE-TX connection).
- Make sure that the maximum switch-to-hub/switch cable distance does not exceed 100 meters (for 10/100/1000BASE-TX connection).
- Verify that the cabling type used is correct.
- Check the corresponding Link/Act, FDX/Col, 100M for signs of faulty connection. Check the status of the cable attachment. If the problem persists, try a different cable.
- Try another port on the Switch.
- Turn off power supply to the Switch. After a while, turn it on again to see if it resumes to its normal function.
- If you find out where the problem is but cannot solve it by yourself, or you simply cannot locate what is at fault, please contact your local dealer for technical support.